

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Company profile:

HeidelbergCement is one of the world's largest building materials companies in terms of sales volumes and operates on 5 continents. Our core products are cement, aggregates (sand, gravel, and crushed rock), ready-mixed concrete, and asphalt. We operate as a fully integrated building materials company in most of HeidelbergCement countries. The key business processes include: extraction of raw materials and production of building materials, as well as their sales and distribution to the customers. Other services offered are sea worldwide trading, especially in cement and clinker. We operate 134 cement plants (plus 19 as part of joint ventures), over 600 quarries and aggregates pits, and around 1,430 ready-mixed concrete production sites worldwide. In total, we employ more than 51,000 people at around 3,000 locations in over 50 countries (plus over 350 production sites belonging to joint ventures). In 2021, the Group revenue amounted to 18.7 billion €.

Sustainability strategy:

Environment and social responsibility are our guiding principles. Our CO2 reduction targets have been updated to show our clear commitment with the environment. Great results have been achieved by using alternative materials, and we have achieved a leadership position within our industry when it comes to the preservation and promotion of biodiversity at our extraction sites, as well as the promotion of best practices within our industry. Concern for the environment, climate protection, and sustainable resource conservation build the foundation for the future development of our Group. In the same way, our obligation to safeguard our employees from work-related dangers and to protect their health has been an integral part of our activities for many years. Furthermore, acting in a sustainable way globally for us also means taking on social responsibility locally. Our activities are strongly influenced by the expectations of external and internal stakeholders, which are systematically recorded and incorporated into our strategic sustainability approach. In addition, the Global Cement and Concrete Association, which is the global voice of the cement and concrete sector aiming to strengthen the sector's contribution to sustainable construction, has defined the following 5 key action pillars: Climate Change & Energy, Environment & Nature, Circular Economy, Social Responsibility and Health & Safety. These action areas are in line with key areas identified in our materiality analysis, published in our Sustainability report and our sustainability strategy mirrors them, thereby ensuring accordance with and enshrining transnational business standards at HeidelbergCement. The principles, main components, and objectives of our sustainability strategy until 2030 are described in our Sustainability Commitments 2030 which are aligned with the UN SDGs.

Sustainability management:

The CSO is the leading person in sustainability topic and is responsible for promoting and coordinating all sustainability activities. The CSO in collaboration with the Managing Board and consultation with the Supervisory Board drive the sustainability strategy. Furthermore, 6 permanent interdisciplinary management teams comprising experts from different departments are responsible for the topics of CO2 management, Sustainable land use, Sustainable construction, Social responsibility, Sustainability strategy & Risk management, and Sustainability ratings & evaluations. In addition, the Environmental Social Governance department is responsible at Group level for preparing key decisions regarding the sustainability strategy and for implementing numerous measures in the area of environmental sustainability on the production side. These include defining guidelines and goals, identifying and disseminating tried-and-tested measures for achieving these goals, internal and external benchmarking, and representing the company in international organizations.

Due to the large quantities of fuel used during the cement manufacturing process and the release of CO2 from raw materials, the global cement industry generates approximately 5-8% of global anthropogenic CO2 emissions. That is why climate protection is at the heart of our environmental policy, and we have been striving for many years to minimize our CO2 emissions. Between 1990 and 2021, we reduced our specific net CO2 emissions by 25% to 565 kg CO2 per tonne cementitious material. By 2030, we intend to reduce our specific net CO2 emissions to 400 kg per ton of cementitious material. Furthermore, we aim to offer carbon-free concrete across our product portfolio by 2050 at the latest. Our previous reduction target (<500 kg /ton cementitious) have been approved by the SBTi and we will seek the approval under the new SBTi framework to have our ambitions aligned with the 1.5°C, underlining our continuous leadership to drive the sector's decarbonization efforts.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2021	December 31 2021	No	<Not Applicable>

C0.3

(C0.3) Select the countries/areas in which you operate.

Albania
Australia
Bangladesh
Belgium
Benin
Bosnia & Herzegovina
Brunei Darussalam
Bulgaria
Burkina Faso
Canada
China
Croatia
Czechia
Democratic Republic of the Congo
Denmark
Egypt
Estonia
France
Gambia
Georgia
Germany
Ghana
Greece
Hungary
Iceland
India
Indonesia
Israel
Italy
Kazakhstan
Latvia
Liberia
Lithuania
Malaysia
Morocco
Mozambique
Netherlands
Norway
Poland
Romania
Russian Federation
Sierra Leone
Singapore
Slovakia
South Africa
Spain
State of Palestine
Sweden
Thailand
Togo
Turkey
United Kingdom of Great Britain and Northern Ireland
United Republic of Tanzania
United States of America

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

EUR

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Financial control

C-CE0.7

(C-CE0.7) Which part of the concrete value chain does your organization operate in?

- Limestone quarrying
- Clinker production
- Portland cement manufacturing
- Blended cement
- Alternative 'low CO2' cementitious materials production
- Aggregates production
- Concrete production
- Concrete pavement / asphalt / tarmac

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	DE0006047004

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Chief Sustainability Officer (CSO)	Our CSO (who is also a member of the Managing Board) is the highest level individual with direct responsibility for all issues pertaining to Environmental Social Governance and climate change. In this position, she is responsible for ESG Strategy, ESG Programs, Research and Development, the innovation hub, and Technologies & Partnerships. This includes our CO2 strategic planning, use of alternative fuels (including biomass fuels) in the cement business and the group's overall performance on climate change issues. The CSO is fully in charge of all ESG & Technology related tasks and briefed regularly on the developments of emissions reductions in the Group, and on political and scientific developments outside our Group but of interest for us by the Director ESG Programs, Director Research and Development, Director Technologies & Partnership and on regular basis by the Director of the Competence Center Cement. The CSO reports on all issues on a regular basis to the Management Board, normally once a month, but if needed more often. As far as climate change is concerned, the CSO is responsible for strategic planning as well as reviewing the progress and status of Greenhouse gas emissions reductions at HeidelbergCement. She is informed by the Group CO2 Strategy Manager and the Director ESG Programs and other related Group functions. The CSO responsible for the topic of sustainability additionally heads the interdisciplinary working group on CO2 management which ensures the involvement of all relevant internal stakeholders as well as structured and efficient management of climate-related issues and risks, called the CO2 Program Management Office (PMO). In 2021, the Managing Board and the CSO took the decision to accelerate our ambitious climate targets. We want to achieve 30% reduction in specific net CO2 emissions compared with 1990 by 2025. By 2030, we intend to reduce our specific net CO2 emissions to 400 kg per tone of cementitious material. This corresponds to a further decrease of more than 22% compared with 2020. Apart from that, in 2021, we revised the targets and related deadlines of the Sustainability Commitments 2030 (our 2030 Sustainability Strategy) to reflect the latest environmental and social developments. The Sustainability Commitments 2030 incorporate key targets related to the UN SDGs, guiding our corporate sustainability management.
Please select	

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	Briefing: The CSO is briefed and deliberates on climate-related issues in all scheduled meetings. The CSO, responsible for ESG, ESG Strategy, ESG Programs, Technologies & Partnerships, give reports on climate-related issues on regular basis to the Management Board (once a month, but if needed more often). The Board reviews and guides strategy, for instance by having approved the Sustainability Commitments 2030 (SC2030), the core document setting the tone for HeidelbergCement's sustainability strategy. In a rolling process from 2017-2021, the targets and KPIs until 2030 have been reassured and accelerated. Example for 2021: The Board has reviewed and approved the accelerated targets and related deadlines of our SC2030 (our Sustainability Strategy for 2030) to reflect the latest environmental and social developments. The SC2030 now incorporate several new and updated targets and an even broader range of commitments as part of corporate sustainability management. By 2030, we intend to reduce our specific net CO2 emissions to 400 kg per ton of cementitious materials. Governance mechanisms contributing to the Board's oversight: The CSO also oversee the progress towards the targets set out in the Sustainability Commitments 2030 to ensure that our country operations achieve them. Latest development was a global country specific management setup for ESG tasks per unit. Every quarter, country managers (GMs) and Financial directors report to the Managing Board by reporting to their respective area's Board Member. These meetings are the main platform for the country organizations to report to the Managing Board and for high-level strategic management and assessment to take place. In the meetings, risks and opportunities, including those related to climate change, are assessed and subsequently managed. E.g. especially in countries where an emissions trading system is in place such as EU countries, regulatory transition risks related to carbon pricing are discussed, assessed and henceforth managed. Likewise, the alternative fuels strategy, which contributes to reducing our carbon footprint, is a frequent topic at those Quarterly Management Meetings. Major plans of actions such as CAPEX, e.g. for plant modernizations that lower CO2 emissions, have to be approved by the entire Board. When an acquisition is considered, the emissions performance of the plants to be acquired and their climate risk profile are closely analyzed. The Board also sets performance objectives for senior managers, and Managing Board members themselves have climate-related targets.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	Yes	In 2021, HeidelbergCement established the position of Chief Sustainability Officer (CSO), specifically responsible for ESG Strategy, ESG Programs, Research and development, Innovation hub, and Technologies & Partnerships. Main competence on climate-related issues is strengthened by a deep operational involvement and understanding of activities linked to all business lines, Cement, Aggregates & Asphalt, Ready-Mix Concrete and Recycling, vertically integrated within HeidelbergCement. The climate-related and CO2 strategic planning therefore involves a holistic approach to track and reduce CO2 emissions along the value chain and accelerate circularity and sustainability in the whole product portfolio. This includes a fundamental knowledge in the product optimization, e.g. within the overall product portfolio, the process optimization, e.g. use of alternative fuels (including biomass fuels) in the cement business line and the group's overall performance on climate change issues linked to plant operations, as well as driving the acceleration of Carbon Capture Utilization, Storage Technologies and strengthening of Partnership towards various industries. The CSO is fully in charge of all ESG & Technology related tasks and briefed regularly (at least every two weeks) on the developments of emissions reductions in the Group, and on political and scientific developments outside our Group but of interest for us by the Director ESG Programs, Director Research and Development, Director Technologies & Partnership and on regular basis by the Director of the Competence Center Cement. The CSO reports on all issues on a regular basis to the Management Board, normally once a month, but if needed more often. As far as climate change is concerned, the CSO is responsible for strategic planning as well as reviewing the progress and status of Greenhouse gas emissions reductions at HeidelbergCement. Environmental Sustainability Governance (ESG) related topics and action items have been addressed on Management Board Level of HeidelbergCement since several years. Before the establishment of the CSO, the responsibility for ESG was with the respective Member of the Managing Board.	<Not Applicable>	<Not Applicable>

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Sustainability Officer (CSO)	<Not Applicable >	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Environment/ Sustainability manager	<Not Applicable >	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Other committee, please specify (Working Groups for CO2 Management, Sustainable Land Use, Sustainable Construction, Social Responsibility, Sustainability Strategy & Risk Management and Sustainability Ratings & Reputation)	<Not Applicable >	Managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

Chief Sustainability Officer (and Member of the Managing Board):

Our CSO is the highest management-level individual responsible for all ESG topics, environmental sustainability and climate change. This position is responsible for our holistic approach on CO2 strategic planning, reducing CO2/GHG emissions along the value chain and accelerate circularity and sustainability in the whole product portfolio. This includes a fundamental knowledge in the product optimization, the process optimization in the cement business line, and the group's overall performance on climate change issues linked to plant operations, as well as driving the acceleration of Carbon Capture Utilization, Storage Technologies and strengthening of Partnership. The CSO is in charge of all ESG & Technology related tasks and briefed regularly (at least every two weeks) on the developments of emissions reductions in the Group, and on political and scientific developments outside our Group by the Directors of ESG Programs, Research and Development, Technologies & Partnership and on regular basis by the Director of the Competence Center Cement. The CSO reports on a regular basis to the Management Board, normally once a month, but if needed more often. As far as climate change is concerned, the CSO is responsible for strategic planning as well as reviewing the progress and status of Greenhouse gas emissions reductions at HeidelbergCement. She is informed by the Group CO2 Strategy Manager and the Director ESG Programs and other related Group functions. The CSO additionally heads the interdisciplinary working group on CO2 management which ensures the involvement of all relevant internal stakeholders as well as structured and efficient management of climate-related issues and risks, called the CO2 Program Management Office (PMO).

Sustainability Manager:

HeidelbergCement's Sustainability Management is organized with the Directors of: ESG Programs, Research and Development, Technologies & Partnership and Competence Center Cement - all report with a direct line to the CSO. The ESG departments is comprised of experts in sustainable construction, climate change mitigation, biodiversity, water management, and corporate social responsibility. Additionally the Department for Technologies & Partnerships coordinates the Group's Carbon Capture and Utilization/Storage research projects. This composition ensures a holistic approach regarding the management of climate-related issues. The Director's and the department's responsibilities include defining guidelines and goals, identifying and exchanging proven measures for achieving these goals, internal and external benchmarking, and coordinating action plans to implement research projects. Furthermore, the Director and his department closely monitor any developments concerning climate-related issues by engaging with NGOs, policy makers and in trade associations. The CO2 Strategy Manager and the Director ESG are supporting the development and implementation of a group-wide CO2 strategy that covers all existing and upcoming CO2 regulations globally.

Committees appointed by the Board:

Since 2019, reassured in 2021, HeidelbergCement operates a high-level working group model for managing the different areas of focus of sustainability: six permanent interdisciplinary management teams comprising experts from different departments are responsible for the topics of CO2 management, sustainable land use, sustainable construction, social responsibility, sustainability strategy & risk management, and sustainability ratings & reputation. The teams report to the Managing Board. They are headed by the CSO, and by specialists from the ESG and related departments. The management teams are comprised of experts from various business lines and disciplines and the directors of Group departments, which promotes the exchange of information between HeidelbergCement's areas and business lines, and ensures a holistic approach and overview of the Managing Board and the Director ESG, who the committees report to, regarding climate change and sustainability topics. The teams involve e.g. the directors of the Group departments ESG, Strategy & Development and Communication & Investor Relations, and the directors of the technology centers of the different business lines. The teams are responsible for accelerating the progress of operating activities with regard to environmental sustainability and sustainability issues, and for positioning HeidelbergCement as a company with clearly defined sustainability targets. They coordinate all issues relating to environmental sustainability and climate change at Group level by defining guidelines, goals and measures, and coordinating their implementation. Operational responsibility for implementing the sustainability and climate protection goals and measures lies with the individual Group departments and the country managers.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	A CO2 component is part of the variable pay component of all bonus-eligible employees. The absolute Group performance is the key indicator for the benefit of all management positions. On Board Management level CO2 is also key directive payment indicator.

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Board Chair	Monetary reward	Emissions reduction project Emissions reduction target Efficiency project	Description: The CEO's variable pay is linked with the achievement of the group-wide CO2 (reduction) Roadmap set by HeidelbergCement. The main levers to achieve the reductions are CO2 emissions reductions in the operations, clinker/cement substitution, use of alternative fuels, energy efficiency and CCUS related activities. Incentivized KPIs: HeidelbergCement's CO2 roadmap has different components, including emissions reduction. The KPIs applicable also relate to clinker/cement substitution, use of alternative fuels and energy efficiency, as these are the main levers for GHG reduction in our company. KPIs are set out in the Sustainability Commitments 2030 with clear targets. Besides the mentioned senior management positions, the CO2 component is also part of the variable pay component of the bonus-eligible employees.
Director on board	Monetary reward	Emissions reduction project Emissions reduction target Efficiency project	Description: Given the global ambition of our CO2 roadmap, all Area Board Members of the Management Board have their variable pay linked with its achievement. The main levers to achieve the reductions are CO2 emissions reductions in the operations, clinker/cement substitution, use of alternative fuels, and energy efficiency. Moreover, collaboration with scientific institutions as well as the development of low-carbon products are relevant goals for specific board members as well. Incentivized KPIs: HeidelbergCement's CO2 roadmap has different components, including emissions reduction. The KPIs applicable also relate to clinker/cement substitution, use of alternative fuels, energy efficiency and CCUS related activities, as these are the main levers for GHG reduction in our company. KPIs are set out in the Sustainability Commitments 2030 with clear targets. Besides the mentioned senior management positions, the CO2 component is also part of the variable pay component of the bonus-eligible employees.
Business unit manager	Monetary reward	Emissions reduction project Emissions reduction target Efficiency project	Description: General Managers (Business unit manager) have CO2 emissions reductions on country level as part of their incentivized targets. They receive a monetary reward, if they perform in their industrial and operational objectives according to the set targets and projects on climate-related issues (CO2 emissions reductions, clinker/cement substitution, use of alternative fuels, energy efficiency and CCUS related activities). These objectives are set in agreement with the Sustainability Commitments 2030 of the Group, as approved by the Management Board. Incentivized KPIs: HeidelbergCement's CO2 roadmap has different components, including emissions reduction. The KPIs applicable also relate to clinker/cement substitution, use of alternative fuels and energy efficiency, as these are the main levers for GHG reduction in our company. KPIs are set out in the Sustainability Commitments 2030 with clear targets. Besides the mentioned senior management positions, the CO2 component is also part of the variable pay component of the bonus-eligible employees.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	5	For the climate risks we consider the following time horizons: We define short-term as the time frame current - 2025. This relates to our regular financial and business planning routines as well as existing and readily foreseeable regulatory dependencies.
Medium-term	5	10	The medium-term is defined as the time frame beyond our regular business planning, but for which a broad strategy is in place and strategic roadmaps exist. Hence the medium-term ranges until 2030. For instance we have set our Sustainability Commitments 2030 for that year, in accordance with the UN Sustainable Development Goals. Furthermore, we have a CO2 strategic plan already in place that sets out a path for CO2 reduction plant by plant until 2030.
Long-term	10	30	We define long-term as the time frame after 2030 and until 2050. It refers to all plans exceeding the 15-year time horizon. This includes investments in assets, R&D for new product lines or strategic investments in new technologies like carbon capture and utilisation/storage (CCU/S) research as well as recarbonation (Recarbonation refers to returning CO2 into the material cycle of cement and concrete by making use of CO2 from ambient air being absorbed by concrete). This time frame and the technologies we are developing now in order to be deployed then will be crucial for achieving the targets of the Paris Agreement. Also, HeidelbergCement's goal is to offer carbon-neutral concrete across our product portfolio by 2050 at the latest.

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

Quantitatively, we define substantive/significant impacts as an impact on the key parameters - result from current operations, profit for the financial year and cash flow - of >120 million €/annum, as indicated in our Annual Report. Quantifiable indicators used to define significant impact are hence impact on business activity, financial performance and results of operations, and cash flow.

Some risks do not have a direct impact on the financial situation, but can have an effect on non-monetary factors such as reputation or strategy. Qualitatively, such risks are something we consider a threat to our core business model, or which requires a major shift in our business model. This is because we are a long-term oriented, asset-intensive company in ever more fluctuating market conditions. In the case of risks that cannot be directly calculated, the potential extent of damage is assessed by the related experts on the basis of qualitative criteria such as low risk or risks constituting a threat to the Group's existence. These are mainly part of the so called "transition risks", for example changes in consumer behavior. We therefore assess potential changes in the nature of the market, the industry and the technology by understanding what is strategically important.

Note: The term substantive financial risk in this CDP questionnaire refers to inherent, or gross risks, whereas our Annual report looks at net risks. Hence, the inherent risks reported here are not all part of our Annual Report.

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Identifying climate-related risks/opportunities: The process of identifying risks is performed regularly on a decentralized basis by the country management and the globally responsible Group functions based on Group guidelines and reporting tools. General macro-economic data as well as other industry-specific factors and risk information sources serve as auxiliary parameters for the process. The risks are consolidated in our company-wide Risk Map, managed by the Group Insurance & Corporate Risk department. The Managing Board of HeidelbergCement sets up and supervises the internal control and risk management system, which includes climate-related risks. It also has overall responsibility for the scope and organization of the established systems. Risk reports for all business lines in the countries we operate in are presented to the Managing Board on a quarterly basis within the framework of central management reporting to ensure that risks are monitored in a structured and continuous way. The process of regular identification is supplemented with an ad-hoc risk report in the event of a sudden occurrence of serious risks or of sudden damage caused. For the different types of risk this means: On the one hand, there is a top-down approach. Technology issues are largely identified by experts in the Competence Center Cement (CCC). Product-related and market-related risks are identified by the R&D department and Marketing department as well as the Strategy department. Policy risks are identified by public affairs managers in countries and the Environmental Social Governance (ESG) and Communication & Investor Relations departments at group level. On the other hand, there is a bottom-up process whereby country managers will inform Group departments about risks identified at country level, which are then assessed at Group level. Frequent exchange between Group departments and country managers ensures that identified risks trickle down into the countries and vice versa. Assessing & responding to climate-related risks/opportunities: Appropriate thresholds for risk reporting have been established for the individual countries, taking into account their specific circumstances. On the basis of our Group's risk model and according to the defined risk categories, the risks are assessed with reference to a minimum probability of occurrence of 10% and their potential extent of damage. The operational planning cycle is used as the period for the probability forecast. In addition to this risk quantification, geared towards a duration of twelve months, there exists also an obligation to report on new and already known risks with medium- or long-term risk tendencies, e.g. physical or market-related climate-related risks. The impacts on the key parameters – result from current operations, profit after tax, and cash flow – are used as a benchmark to assess damage potential. Both dimensions of risk assessment can be visualized by means of a risk map. Risks are also assessed at a qualitative or strategic level. E.g. after risks have been identified at local level in country organizations, General Managers will ask our competence centers (e.g. CCC) to make an assessment on the risk. Based on the outcome, management measures are taken accordingly. Such strategic risk assessment is product- and market-oriented, looking at technological development and managing risks accordingly. The Quarterly Management Meetings (QMMs) provide a platform for the Managing Board and responsible country managers to discuss and determine appropriate risk control measures promptly. Decisions are thus made as to which risks will be intentionally borne independently and which will be transferred to other risk carriers, as well as which measures are suitable for reducing or avoiding potential risks. E.g. our low carbon transition plan is a result of climate-related risks that have been assessed by the ESG department, Strategy department and the CCC. The Supervisory Board and its Audit Committee also review the effectiveness of the risk management system on a regular basis. Analysis of climate change risks is part of HeidelbergCement's overall risk management approach. Since September 2020, HeidelbergCement has been an official supporter of the Task Force on Climate-related Financial Disclosure (TCFD) and the first TCFD Report is included in our Sustainability Report 2020. TCFD since is a consistent part in our future Sustainability Reports. Case study transition risk/opportunity: Climate change is one of the reasons for a higher demand for low carbon or sustainable products, especially in mature markets. One example is Norway, where an increase of awareness in the market was pushing the Construction Industry towards low-CO2 cement to be competitive against other local construction materials. We reacted by importing alternative cementitious materials and produce low clinker content cement, which can save approximately 30% of the CO2 emissions in the production process. The risk is managed by the country managers and responsible Group departments, who determine the risk and investigate on a mitigation strategy, in conjunction with R&D, who research on the solution of producing low carbon cement, and the country operations in Norway, who implement the solution and sell the product to the customers. The process is closely monitored by the Managing Board and e.g. discussed at the QMMs. Case study physical risk/opportunity: For the cement production process, the availability of a sufficient amount of water is necessary in multiple stages of the production process, e.g. for cooling heavy equipment, and de-dusting and cleaning. A physical risk of climate change is that water might become a scarce resource in different regions in the future and might therefore not be available in sufficient quantities for our production process. We manage the physical risk of projected water scarcity by deploying water management plans, local benchmarking and water consumption reduction targets at our plants, prioritizing those located in extreme water scarcity as defined with the help of the WRI Aqueduct tool. Indeed, our Sustainability Commitments 2030, including a section on water, do exactly that: manage the physical climate-related risk of greater fresh water scarcity in many regions of the world. The risks are managed by the country operations in conjunction with Group departments like the Technology Centers, who e.g. help in deploying water efficient technologies in order to decrease water consumption. The Managing Board oversees this risk, especially in countries with extreme water scarcity, and is briefed regularly, e.g. in the Quarterly Management Meetings QMMs. This enhanced awareness and management also bears the opportunity of cost savings due to maximum focus on water stewardship.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

Relevance & inclusion	Please explain

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Relevance & inclusion in risk assessment: In 2021, more than 40% of HeidelbergCement's worldwide clinker production was affected by financial CO2 regulations such as emissions trading systems and CO2 taxes (e.g. EU ETS, Guangdong ETS, Canada CO2 provincial regulations). The potential costs associated with such schemes are factored into our climate-related risk assessments in order to inform strategy and forecast accordingly. We assess risks associated with carbon pricing schemes across the globe and manage these risks with comprehensive allocation and forecasting models managed by our Group CO2 Strategy Manager in conjunction with the Director ESG Strategy & Reporting, the responsible Board Members and other relevant departments. Risks with a potential impact on our result and our cash flow are for instance reported to the Global Insurance & Corporate Risk (GIR) department and the Group Finance & Accounting (GFA) department. Example & explanation how risk is included: We deem current regulation a relevant risk as we are already subject to carbon pricing legislation e.g. in the EU, China and Canada, which means a cost factor for us that is related to climate change. E.g. cap and trade schemes bear the risk of having to buy emission allowances in case there are no Carbon leakage protection measures implemented or production volumes exceed free allocation. The prices for emission allowances are not fixed which means that prices with a huge volatility can barely be anticipated. This increases the risk exposure to high financial expenses. E.g. the prices for allowances in the EU ETS are driven by multiple factors besides the normal demand and supply, such as current discussions in national governments and on a European level, anticipation of different weather forecasts influencing the purchasing behavior of the power sector, and interests from financial institutes, speculative traders and hedgefunds. Driven by those factors among others, we saw an increase in CO2 costs in the EU ETS (the prices for emission certificates have increased more than sixfold from 2019 to 2021 - reaching 90€ in 2022). Such risks are assessed by the CO2 Strategy Manager in conjunction with the Director ESG Strategy & Reporting. As a risk with a potential impact on our result and our cash flow, it is also reported to the GIR department and reviewed accordingly. It is of course also reported to the GFA department.
Emerging regulation	Relevant, always included	Relevance & inclusion in risk assessment: Emerging carbon pricing policies are an example which we include in our risk assessment. Besides the CO2 pricing schemes that we are already affected by, other Group countries such as Indonesia and Thailand accelerated in 2021 they plan to also introduce CO2 regulations in the future to reduce national emissions and achieve the Paris climate targets. This could create additional burdens as a result of higher manufacturing costs and clear competitive disadvantages in comparison with producers from countries without carbon pricing policies (carbon leakage). To assess and manage this risk, our dedicated Public Affairs staff monitors developments worldwide and engages in close alignment with relevant industry associations and other stakeholders (e.g. think tanks, NGOs) as well as decision-makers regarding emerging regulation. For instance, we engage with policy makers and other stakeholders at EU level in order to develop policy instruments to enable decarbonization of heavy industries. Our Public Affairs staff regularly aligns internally with ESG, Group Strategy & Development (GSD) and Global Insurance & Corporate Risk (GIR) departments on these issues in order to reflect recent developments in our risk analysis processes. Example & explanation how risk is included: ESG takes over the responsibility and coordinates in close alignment with GSD and GIR departments further actions developing allocation scenarios and forecasting models to help in quantifying the risks associated with emerging regulation, more specifically emerging carbon pricing policies such as the fourth phase of the EU ETS. If it is a risk with a potential impact on our result and our cash flow, ESG in conjunction with the Global Insurance & Risk department assesses the risk with the help of a Risk Atlas (Mapping tool for potential risks and losses). This information is used by ESG to update the scenarios and allocation model on a regular basis according to new (political) developments. Based on these models, GSD together with ESG developed a plant-by-plant roadmap to ensure a uniform approach. For all plants, but especially plants located at the border of the EU (Greece, Bulgaria, Poland, Spain, Italy, France, Germany, UK, Benelux, Sweden, and Norway) assessments on consequences for border measures are calculated as well. With the merge of the Carbon Border Adjustment Measure discussions on EU level the discussion progressed in 2021.
Technology	Relevant, always included	Relevance & inclusion in risk assessment: Climate-related inherent technology risk is highly relevant for us as a technology-driven company. Hence, technology risks are reported to Group Insurance & Corporate Risk accordingly. Experts at the Heidelberg Technology Centre and the Environmental Social Governance department assess for example the risk associated with failure to application of the carbon capture technology for certain plants especially in Europe, as regards consolidation effects of the market for instance resulting in stranded assets. We consider it a technology risk that certain plants might not be able to operate anymore unless they have a carbon capture installation in place. Our low carbon transition plan in turn constitutes a management of such risks. For each country, but in fact for each plant, local conditions and especially availability of alternative materials (fuels and raw materials) have to be considered. Example & explanation how risk is included: While in Central and Northern Europe Alternative Fuels are common practices, permission and public acceptance of Alternative Fuel usage in other countries still presents a challenge. In some other countries, such as Thailand, there is high competition for use of highly available biomass as fuel due to competition with the power sector. Hence, such risks are monitored by countries and with support of regional Alternative Fuel managers with the help of our low carbon transition plan. For each country, but in fact for each plant, local conditions and especially availability of alternative materials (fuels and raw materials) are considered, and the different situations in different countries are taken into account. Emerging technologies revolving around alternative raw materials, especially for Cement (Calcined Clay, Pozzolana, recycled concrete paste (RCP)), Concrete and Asphalt production, are assessed in detail and based on the local availability of respective sources and sourcing permits, as well as norms for products and construction.
Legal	Relevant, always included	Relevance & inclusion in risk assessment: Exposure to climate-related litigation or other legal risks is closely monitored and assessed by our Group Legal department. An example of a risk would be a lawsuit related to the adverse effects of climate change on certain groups of people and our role as an emitter of CO2 accordingly, which shows the relevance of these risks to HeidelbergCement. At HeidelbergCement, a staff member specialized in environmental law monitors the situation, assesses potential risks for HeidelbergCement, and discusses them with the Environmental Social Governance (ESG) and Group Communications & Investor Relations department. The identified and assessed risks are then reported to the Group Insurance & Corporate Risk department. Separate from this general assessment we have, on country levels, separate assessments of country specific issues. Example & explanation how risk is included: An example for the assessments on country level is the carbon tax in Sweden. This tax applies to emissions which are not covered by the EU ETS, e.g. parts of logistics. As the cement business requires huge logistics efforts, those legal regulations and costs need to be recognised at a Group level. The ESG department together with local managers assesses such risks, likewise as opportunities such as tradable Energy Efficiency Certificates in Italy. These specific national measures have to be taken into account at Group level, and are assessed by country-level experts. After the assessment, these opportunities are taken to senior management if deemed interesting.
Market	Relevant, always included	Relevance & inclusion in risk assessment: Market risks are included in HeidelbergCement's risk assessment. We look at developments regarding new products and changing customer behavior having a potential impact on our current product portfolio and sales, for instance in regards to the demand for low-carbon cements. For example, in mature markets, the demand for low-carbon products can rise due to an increased awareness of the embodied carbon in our products, which might lead to customers demanding products with a lower CO2 footprint. This poses a risk to HeidelbergCement as sales could decline if the company is not able to supply such low-carbon products. The Group Strategy & Development department liaises with our R&D and Marketing & Sales personnel on this to manage this risk. The same departments also monitor and assess risks related to product substitution and competition from other materials such as timber for housing. Any identified and assessed risks are then reported to the Group Insurance & Corporate Risk department. Each country is different in this respect and therefore also our activities in these markets are different and not group-uniform. For example, the competition in Nordic countries in building materials for residential buildings is completely distinct from that in Southern Europe. Example & explanation how risk is included: For instance, an increase of awareness in the Norwegian market was pushing the Construction Industry towards low-CO2 cement to be competitive against other local construction materials. HeidelbergCement managed this risk by importing cementitious materials and producing other blended cements which can save approximately 30% of the CO2 emissions in the production process. This was possible due to close monitoring of the market and the customer preferences by Marketing & Sales personnel in conjunction with the local operations. Together with Group Strategy & Development and R&D, a solution was found by offering an alternative material with a better carbon footprint.
Reputation	Relevant, always included	Relevance & inclusion in risk assessment: We consider reputational risks relevant for our assessment as they have the potential to adversely affect our business performance, for instance our sales and hence our result. Those risks are assessed jointly by the Environmental Social Governance and the Group Communication & Investor Relations department. Experts in the teams monitor developments and are in constant exchange with external stakeholders, so that they are able to assess and gauge climate-related inherent risks related to reputation. As these risks are assessed on a constant basis, the departments are able to manage and neutralize them accordingly. Example & explanation how risk is included: An example of an inherent reputational climate-related risk is for instance stigmatization of our sector as it could happen that customers will not want to buy our cement and concrete anymore due to the high CO2 emissions caused by the sector. For instance, this may occur as NGOs or think tanks publish sectoral reports that are negative towards the sector as a whole and do not distinguish between companies. Such risks are assessed by the Environmental Social Governance and the Group Communication & Investor Relations department on a constant basis. We consider such risks relevant for our assessment as they have the potential to have adverse effects on our business performance, for instance our sales and hence our result. As HeidelbergCement has different brand names in each country, we have diversified our brands in this way. The approach of our subsidiary ENCI in the Netherlands towards the market is different than the approach of CBR in Belgium and therefore also the risks are different.
Acute physical	Relevant, always included	Relevance & inclusion in risk assessment: We deem acute physical climate-related risks relevant to us as they could impact our production facilities, and result in costs and damages, and opportunity losses to our operations. Analysis of acute physical risks, such as extreme weather events, is part of HeidelbergCement's overall risk management approach. The process of identifying risks is performed annually for the whole Group and combines bottom-up reporting at country-level with a top-down global analysis of our physical risk exposure by the Environmental Social Governance and Group Insurance & Corporate Risk (GICR) departments. As part of our work on the TCFD recommendations, HeidelbergCement has conducted an assessment of the physical risks associated with climate change covering several acute climate-related risks, such as flooding. We have rated each of our own operations separately according to the exposure to the main acute and chronic risks, and are now developing plans for each business line to adapt our operations quickly to the expected local impacts. We already do so for new assets as part of our investment due diligence process that covers physical as well as transition risks. Example & explanation how risk is included: An example of an acute physical risk would be a flooding of our plant as a result of a storm or heavy rainfalls, which would cause production stops (opportunity losses) and damage to the plant. Especially in countries located near the sea or in river basins, e.g. in the Netherlands or Bangladesh, there is an increased danger of plants being flooded and incurring financial losses due to production stops or necessary reparations. With the increasing occurrence of extreme weather conditions due to climate change, the risk exposure to acute physical risk is expected to increase. Indeed, a sound assessment of such risks sets the basis for negotiating the right insurance contracts for our production sites, which is why GICR assess such risks in conjunction with our country managers as well as put mitigation actions in place such as investing in drainage systems or flood protection. Floodings in countries at the sea (Netherlands, Bangladesh) have completely different issues to take into account and consequences than floodings in mountainous regions like our operations in Southern Germany or Edmonton (Canada), therefore the country managers are involved in the risk assessments.

	Relevance & inclusion	Please explain
Chronic physical	Relevant, always included	Relevance & inclusion in risk assessment: Chronic physical risks such as water scarcity are assessed by the Environmental Social Governance (ESG) department in close cooperation with other departments such as Group Insurance & Corporate Risk. For example, we use the WRI Aqueduct tool to assess our exposure to water shortages at each of our plants world-wide. Water is required in various steps of cement production, for instance for cooling heavy equipment, and de-dusting and cleaning. It is also required for emission control systems, such as wet scrubbers and in older so-called wet process kilns. Therefore, the availability of water is important for our production process and chronic physical risks are relevant for our risk assessments. As part of our work on the TCFD recommendations, HeidelbergCement has conducted an assessment of the physical risks associated with climate change covering several chronic climate-related risks, such as drought. We have rated each of our own operations separately according to the exposure to the main acute and chronic risks, and are now developing plans for each business line to adapt our operations quickly to the expected local impacts. We already do so for new assets as part of our investment due diligence process that covers physical as well as transition risks. Example & explanation how risk is included: For the cement plants located in water scarcity areas according to the tools used in our assessment (e.g. in India and in Egypt), we have set up the target to establish comprehensive water management plans. These plans contain tailor made local efficiency and water stewardship measures at watershed level for cost effective implementation at site level, such as implementing water saving production-technologies or investing in water recycling on-site. This is part of our Sustainability Commitments 2030 in order to manage water efficiently and thereby manage chronic physical risks. In order to set up these plans, ESG and the country operations work together closely.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Current regulation	Carbon pricing mechanisms
--------------------	---------------------------

Primary potential financial impact

Increased direct costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Cap and trade schemes bear the risk of having to buy emission allowances in case there is no exemption rule applicable or production volumes exceed free allocation. We might be unable to pass this additional cost to our customers. The magnitude of this risk depends on the market price for allowances, the volume of free allocation and our cement production volume, as 60% of these emissions are irreducible process emissions from clinker production, which can not be addressed by conventional measures. The market price of cement also plays a role – and with it our (in)ability to pass cost increases for HeidelbergCement through to our customers. More than 40 % of HeidelbergCement's worldwide clinker production is affected by financial CO2 regulations such as emissions trading systems and CO2 taxes. This could create additional burdens as a result of higher manufacturing costs and clear competitive disadvantages in comparison with producers from countries without climate regulations. Currently our operations in Europe, Canada and Guangdong (China) are affected. EU: The cement industry and hence HeidelbergCement has not been affected by the full auctioning of emission rights since 2013. The emission rights will thus continue to be allocated free of charge, but their quantity is reduced significantly. A rise in climate protection cost may be assumed as the total volume of certificates continues to decrease, while we expect an increase in production. The main risk is a competitive disadvantage with respect to producers from outside emissions trading (carbon leakage). Canada: So far we outperform the product specific benchmark in most provincial climate regulations (e.g. allocated sufficient emission rights free of charge to the cement industry and hence to HeidelbergCement). We do not expect this to change in the short term. However, we expect changes in the long-term. Any involvement in climate regulations will lead to additional costs in the future. China: HeidelbergCement is currently affected by a cap-and-trade pilot project in the province Guangdong. In 2021, a new national emissions trading system was introduced in China, which will be extended to cover the entire cement industry, as well as other energy-intensive industries. The full extent of the impact on our cement plants in this country cannot be conclusively assessed at this point; however, it can be assumed that the Chinese emissions trading system will assess cement production.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

100000000

Potential financial impact figure – maximum (currency)

300000000

Explanation of financial impact figure

While we analyze various scenarios in order to forecast or estimate the financial impact of cap and trade schemes, it is important to note that the price estimate above is

merely the outcome of one of the scenarios we have looked at. Different scenarios look at price ranges of over €70 per tonne of CO₂ (CO₂ price of the EU ETS at the end of 2020) to 130 €. With sensitivity to the price development of allowances, we estimate that the EU ETS for instance could cost us around 100 million € up to 300 million € per year until 2030, based on a range of different price developments of allowances, the countries covered by this ETS that we are active in and the amount of CO₂ expected to be covered by this ETS until 2030. This would then in the next 10 years sum up to 2,000,000,000 € assuming an average of 200 million € per year. Hence, the figure above refers to possible increased costs related to the EU ETS which could range from 1,000,000,000 € (10 years times 100 million €/year) to 3,000,000,000 € (10 years times 300 million €/year). With the increased climate ambition on EU level (EU Green Deal) we expect to have more severe implications also on the reduction target within the EU ETS linked also to a reduced level of free allocations, or in case of introduction of Carbon Border Adjustment Measure (CBAM) even a loss of these. With latest EU discussions revolving around a step-wise phase-in of the CBAM over the years 2026-2035 with a 10% per anno phase out of free allowances for domestic producers and a 10% annual increase in CO₂ costs for importers, the total amount of EUAs/CO₂ allowances that need to be purchased on the market are significantly increased until end of Phase IV in 2030. Therefore the range of potential financial risk is medium-high.

Cost of response to risk

650000000

Description of response and explanation of cost calculation

Regarding ETS, we implemented a three pillar risk management approach. 1) continuous investment in R&D, innovative CO₂-reduced products, energy efficiency, process optimization and new emission reduction technologies, like Carbon Capture Utilisation and Storage (CCUS). Examples for managing this risk are: We participate in cutting edge research by separating the carbon and subsequently storing it so it does not increase the concentration in the air. Projects take place in our Brevik and Lixhe plants. In 2022 HeidelbergCement released the current CCUS-project pipeline including in total seven full-scale implementations of CCUS. We also continue with our Continuous Improvement Program to optimize processes in the long run by e.g. increasing energy efficiency and alternative fuels, especially the biogenic portion in the overall fuel mix. 2) engagement with decision makers and funding policy research to promote functioning carbon markets, carbon leakage protection or border adjustments for energy-intensive industries, and political stability and predictability of cap and trade schemes. Here the engagement within the EU on the future implementation of Carbon Border Adjustment Measures (CBAM) is to be further highlighted. 3) monthly updated market specific CO₂ trading strategy to anticipate market developments and opportunities.

Comment

More information on the financial CO₂ regulations that we operate under can be found in our Annual Report on page 74.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Downstream

Risk type & Primary climate-related risk driver

Market	Changing customer behavior
--------	----------------------------

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

As HeidelbergCement's products cement and concrete are energy- and carbon-intensive building materials, there is the potential danger that behavioural change in consumer patterns might lead to increased substitution of cement and concrete with competing building materials, such as timber or steel, or new alternative binder concepts, although those competing products might not have a more favorable footprint considering the whole life cycle. In Life Cycle Assessments of cement and concrete, qualitative advantages are investigated in-depth and are well communicated to the market participants. Still, the carbon-intensity and related perception of cement might lead to negative implications for our sales volumes and revenue across the markets, in which we operate. Increased substitution might lead to a reduction of demand for our products and hence decreased revenues for our company. This is a greater risk in mature markets as well as those with consumers focused on carbon footprint, such as North America and our European operations. HeidelbergCement is active in nearly 30 countries in the regions Western and Southern Europe, North America and Northern and Eastern Europe-Central Asia. For this reason, shifts in consumer preferences pose a risk. For instance, an increase of awareness in the Norwegian market was pushing the Construction Industry towards low-CO₂ cement to be competitive against other local construction materials in the past. HeidelbergCement managed this risk by importing slag and producing slag cement which can save approximately 30% of the CO₂ emissions in the production process.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

187000000

Potential financial impact figure – maximum (currency)

935000000

Explanation of financial impact figure

The potential financial impact of this risk is reduced demand for our products which would result in decreasing revenues. As cement and concrete are the primary building materials for public and private construction, we estimate that potential negative financial implications would be low-medium ranging between 1 and 5% of Group revenue per annum within the next 20 years. The percentages were estimated in internal assessments based on the fact that the risk for reduced demand refers mainly to the residential market and applies mainly in few countries until now, e.g. Scandinavian countries. As HeidelbergCement is active in more than 50 countries globally, this risk mainly refers a fraction of the markets that we are active in. Furthermore, substitution is only possible for certain applications, but not for others, such as main infrastructural works (tunnels, harbours, etc.). This range of 1-5% corresponds 187 to 935 million € to based on our Group revenue of 18.7 billion € in 2021 (187 million € being 1% and 935 million € 5% of current Group revenue).

Cost of response to risk

123600000

Description of response and explanation of cost calculation

To minimize risks associated with the substitution of our products, we constantly optimize our CO2 footprint by investing in R&D to develop alternative binders with a more favorable energy and CO2 footprint, increasing the use of alternative fuels and continuously decreasing the carbon-intensive clinker content in our cement products. We have already reduced the clinker content in cement using alternative materials as in 2020, our clinker content in cement was 74.3%, decreasing to 72.9% in 2021. Part of our Sustainability Commitments 2030 is investing substantially in R&D towards innovative low-carbon production technologies and products, which is considered as the key driver to create engagement between operations and customers to drive decarbonization across all operations and activities As part of the Concrete Initiative, HeidelbergCement furthermore engages in the promotion of concrete as a building material, by for example setting up Marketers' Workshops, promoting the resilience and durability benefits of concrete and much more. Furthermore, we assess local conditions for the feasibility in different countries when developing new products and solutions depending on the preferences of the local customers and the availability of the required materials. Expenditure associated with minimizing this risk is mainly connected to our R&D budget of which we used around 110.8 million € in 2021 for pushing CO2 reductions by developing new process technologies and low carbon products. This is an estimate based on the fact that the main priority of our R&D activities is the development and improvement of binders and concretes with optimized properties and innovative functionalities. Improving the characteristics of cement and concrete is an important lever in terms of both optimizing the use of these building materials and reducing the overall CO2 emissions associated with concrete use.

Comment

More information on our R&D Activities can be found in our Sustainability Report on the pages 42 ff.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Downstream

Risk type & Primary climate-related risk driver

Market	Other, please specify (Increase of transport cost and insufficient capacity)
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Primary potential financial impact

Other, please specify (Increased logistics costs as well as reduced revenues due to decreased production capacity and reduced demand)

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

The cement, aggregate and concrete business requires an on-time delivery of large volumes of customer-specific cementitious products and likewise customer-specific concrete mix-designs. Due to extreme weather scenarios (e.g. floodings, low water), interruptions of the supply chain can occur. Variations in water levels in rivers impact the availability and capacity of barges, which often leads to a switch in the mode of transportation to truck deliveries for cement shipments, and increased costs and delays. In Southern-Western Europe, the low water levels in multiple rivers caused additional expenses for two of HeidelbergCement's Business lines, cement and aggregates, in 2018. This affected among others mainly cement and aggregates business in Belgium/Netherlands and Germany. In 2019, challenges were faced in two countries in Western Africa when due to floodings caused by heavy rainfall, transportation vehicles had to be rerouted with significant detours. Such interruptions can cause increased logistics costs. Extreme weather conditions could also lead to a disruption of a steady production process within the cement clinker kilns. A constant degree of around 1450 degree C is necessary at a constant flow of raw materials within the kilns. A kiln shut down is to be considered at a major loss of efficiency not only for the pure production but also for heat levels to be kept with a non-stop flow of the right fuel mix between conventional and alternative/biogenic fuels. Reduced production capacities due to kiln shut downs might lead to reduced revenues and increased logistics costs for ad-hoc logistics solutions. Another major industry-specific risk is the weather-related sales risk for building materials, which is mainly due to the seasonal nature of demand. Harsh winters with extremely low temperatures or high precipitation, such as monsoons, can negatively impact construction activity and therefore sales volumes of our products and, in turn, impair our business performance.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

187000000

Potential financial impact figure – maximum (currency)

561000000

Explanation of financial impact figure

Extreme weather conditions could lead to an increase in logistics costs between 1 to 3% of the Group's logistics spent, and a decrease in sales volume due to decreased production capacities between 0 to 1% of current Group revenue, i. e. up to 187 million € (18.7 billion € being the Group revenue in 2021). The number for increased logistics costs of 1 to 3% is an estimate based on two factors: first, the volume that was shifted from ship to truck delivery and second, the overall increased demand of additional trucks because of extreme weather conditions in past such extreme weather events leading to the increased logistics costs. The decrease in sales volume due to decreased production capacities between 0 to 1% of current Group revenue possibly caused through extreme weather conditions is an estimate based on the fact that our business is globally diversified and we are active in more than 50 countries worldwide operating at more than 2,500 locations. Hence, extreme weather conditions would likely impact only a small fraction of our operations and impede our production capacities there leading to the estimate of decreased production capacities between 0 to 1% of current Group revenue. Combining both factors leads to potential financial impact figures between 100 million € and up to 250 million € in a worst case estimate based on internal assessments.

Cost of response to risk**Description of response and explanation of cost calculation**

In order to minimize negative financial impacts from interruptions of the supply chain, HeidelbergCement engages heavily in network optimization activities. For international challenges, central functions in the respective business lines cement, aggregates and ready mix concrete create and coordinate contingency plans together with the countries. This is part of the international Logistics Efficiency Optimization project. The project aims at continuous improvement of the supply chain management. Network optimization, the implementation of contingency plans by optimizing the modes of transportation and counter-measures for climate-related risks and other interruptions of the supply chain are part of the overall logistics optimization expenses that occur in the country organizations as well as Group functions. We counteract weather-related fluctuations in sales volumes and risks from trends in sales markets with regional diversification, increased customer focus, the development of special products, and, to the extent possible, with operational measures: e.g. we adjust the production level to the demand situation and use flexible working time models. The above mentioned topics are cornerstones of our business strategy, therefore there is no specific additional management cost related to mitigating this risk. For both cases, costs of management of this risk are roughly estimated based on FTE in the countries and the Group and IT involved as these costs are not split within the Group. They amount to roughly 2 million €, calculated by using the estimated number of FTEs involved multiplied by a representative annual salary for country and Group functions.

Comment

Physical climate risks are part of our TCFD Report included in the Sustainability Report on pages 27 ff.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development of climate adaptation, resilience and insurance risk solutions

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

With the likelihood and propensity of extreme weather events and natural disasters, such as flooding, rising as a result of climate change, we expect a surge in demand for concrete to build up resilient infrastructures that are able to counter-act and protect from the disastrous consequences of such events faced in affected regions. As HeidelbergCement provides such resilient infrastructure solutions in over 50 markets around the globe, changes in these physical climate parameters offer a business opportunity for our company. In that respect, HeidelbergCement engages in climate change adaptation solutions and helps in supplying products for this adaptation demand. We offer products for the increased demand for climate change adaptation products, enhance our revenue and offer infrastructure solutions. Special concrete products' use include: flood barriers and other protective structures, hydraulic works and coastal defenses, sustainable urban drainage systems that can cope with heavy rainfall and protect the built environment against flash floods, water conservation and management in dams and reservoirs. Our patented product TerraFlow® can also be used in underwater applications, so that HeidelbergCement positions itself to reap the benefits of the substantial underwater application market. An example for this opportunity is the provision of eco-friendly concrete blocks for the refurbishment of the Afsluitdijk dike in the Netherlands. 32km of this dike, which protects large parts of the Netherlands against floodings, are renewed / reinforced in this project. This gave us the opportunity to profit financially from our sustainability performance by supplying eco-friendly materials for the building of resilient infrastructure.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

935000000

Potential financial impact figure – maximum (currency)

3740000000

Explanation of financial impact figure

We expect a growth in the quantity demand of concrete for building resilient infrastructures to adapt to climate change within the next decade or two. Indeed, we expect this effect on revenue to be a growth of up to 5-20% within the next 10 to 20 years compared with our current revenue of around 18.7 billion €. The range of 5-20% is an estimate based on internal assessments of our markets and the demand for building materials in projects focusing on climate change resilience that we have been part of in the past, as well as future projections taking into account consequences of climate change such as rising sea levels which increase the demand for resilient infrastructure causing increased demand for resilient infrastructure. The impact indicated above depicts the 5-20% additional revenue scenario for one year based on current revenue which amounts to 935 to 3,740 million €. The figures are to be seen as an annual additional revenue as opposed to the cost of realizing this opportunity.

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

We are engaging in peer-group specific marketing initiatives, e.g. the Concrete Initiative. The initiative promotes the capabilities of concrete to tackle future infrastructure and climate change challenges by disseminating information. HeidelbergCement with the Concrete Initiative has, e.g. published on how concrete can enhance thermal comfort by minimizing or avoiding overheating during heat waves, especially when combined with natural ventilation and appropriate building architecture. Our portfolio includes special products, e.g. special cements, binders, and concretes for flood protection, to manage the opportunity of enhanced demand for climate change adaptation products, enhance our revenue and offer infrastructure solutions. Special concrete products' use include: flood barriers, protective structures, and sustainable urban drainage systems that can cope with heavy rainfall and protect the built environment against flash floods. An example for a product is the provision of concrete blocks for the refurbishment of the Afsluitdijk dike in Netherlands. 32km of this dike, which protects large parts of Netherlands against flooding, are renewed / reinforced in this project. Costs associated with the management of this opportunity stem from R&D activities in the fields of consumer-related development and technical service, which focus on developing special added value products e.g. suited for special infrastructure purposes. This refers to our activities of the respective national subsidiaries, the relevant departments and employees to develop and optimize the cements, aggregates, and concretes that are tailored to local needs, often in close cooperation with customers. The number is aggregated at Group level and makes up one of the main field of activities of our expenditures on research and technology (total expenditures on research and technology were 123.6 million € in 2021).

Comment

More information on our R&D Activities can be found in our Sustainability Report on the pages 42 ff.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Resilience

Primary climate-related opportunity driver

Other, please specify (Sequestration potential of depleted oil and gas fields and saline aquifers)

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

Industry is expected to become carbon neutral by 2050. For the cement industry (as indicated by the CEMBUREAU Decarbonization Roadmap 2050) this will require a substantial contribution of Carbon Capture and Storage (CCS). HeidelbergCement takes a leading role when it comes to climate protection research projects and invests in particular in studies into innovative techniques for the capture and utilisation/ storage of CO₂ (CCUS). We are furthermore committed to reach Net-Zero emissions on Group level before 2050 and will officially verify this ambition with the Science Based Target Initiative by End of 2022. We are in the unique position to be an early adopter of the CCS technology. This is because HeidelbergCement's subsidiary Norcem has, supported by the Norwegian Government both strategy-wise as well as monetary-wise, developed and matured the CCS for cement technology to a level that it is now ready for a Final Investment Decision. Based on the learnings of this project, HeidelbergCement is in the unique position to develop solid plans for CCS, as can be seen for example by the feasibility study done in Alberta-Canada at the Edmonton cement plant, a project co-financed by ERA-Alberta. In 2021, we also announced a full-scale CCS project for our plant in Slite-Sweden. Being an early adopter of the CCS technology will enable us to significantly reduce indirect operating costs caused by carbon pricing mechanisms, such as the EU ETS.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

0

Potential financial impact figure – maximum (currency)

775000000

Explanation of financial impact figure

The potential financial impact of this opportunity is to save indirect, operating costs by reducing CO₂ emissions through Carbon Capture and Storage, and reduce / avoid the costs that would incur for these emissions through emission trading systems. While we analyse various scenarios in order to forecast or estimate the financial impact of cap and trade schemes, it is important to note that the following estimate is merely the outcome of one of the scenarios we have looked at: EU ETS is expected to increase from 90 €/t CO₂ in 2022 to 130€/t CO₂ in 2030. This is an estimate based the development of prices in the past years and on the fact that prices for emission rights are expected to increase, because the EU's ambitious climate targets (Green Deal) and the implementation of the Carbon Border Adjustment Measure (CBAM) are expected to lead to a tightening of the reduction target in the EU ETS, which will be reflected in increased demand for CO₂ certificates on the market. Norcem project will be operational by 2024 and is some 5 years ahead of competition. The CCS plant will avoid 0.4 million tons CO₂ per year x 5 year ahead of others is 2 million tons CO₂ avoided for EU ETS payments. With the release of the total CCUS project pipeline considered within HeidelbergCement amounting a 7 industrial-scale CCUS projects until 2030, we will capture a total of 10mtCO₂ until 2030 and see a competitive advantage of a total of 775 million € within the EU ETS alone. Another upside comes from the CCUS Project in Edmonton/Canada, which also gives a competitive advantage in realm of the local CO₂/climate regulation.

Cost to realize opportunity

1500000000

Strategy to realize opportunity and explanation of cost calculation

HeidelbergCement's strategy to realize this opportunity is to invest and engage in multiple CCS projects: Since 2011, a project for CCS in the cement industry has been running at our subsidiary Norcem in Brevik, Norway. At our cement plant in Edmonton/Alberta, Canada, the organisation Emissions Reduction Alberta is providing 1.4 million Canadian dollars for a feasibility study for an industrial-scale project for CCS. As first of a kind project the Norcem budget is around 300 million €. High funding rates from the Norwegian government will balance the investment that HeidelbergCement will do. Project budgets are conditionally approved by our Managing Board. The condition is that the Norwegian government releases the indicated funding budget. The Norcem CCS project is part of the Full Scale CCS Project managed by Gassnova

on behalf of the Norwegian Government. The transport and storage is a responsibility of the consortium Northern Lights, that consists of Equinor, Shell and Total. Norcem has completed a FEED study on the Capture part, which is externally verified. The costs have been calculated during the extensive and extremely detailed FEED study. Also the main contract for the supply of the equipment has already been signed with Aker Solutions (under the condition of government approved budget). Our installation at the Slite plant will capture up to 1.8 million tonnes of CO₂ annually from 2030, which corresponds to the plant's total emissions. A feasibility study is currently addressing questions of technology selection, environmental impact, legal aspects, financing, logistics and energy supply. According to the plans, the captured CO₂ is to be transported to a permanent storage site under the North Sea. The project will be leveraging on all the know-how and cost data gained by Norcem project. The costs of 200 million € indicated above are aggregated costs over the next 10 years for all our CCS projects, except the recently announced Slite project, taking into account (i. e. subtracting) assumptions for external funding by governments, Innovation Fund (up to 60% of project costs) and others. Hence this is an estimate summing up the proportions of the overall project costs of the projects that HeidelbergCement will finance, including e.g. the part of the costs of around 300 million € for the Norcem project not being covered by government subsidies. As the project in Slite was only announced in June 2021, its costs are not yet included in the figure.

Comment

More information on our research projects investigating carbon sequestration can be found in our Sustainability Report on the pages 56f.

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

HeidelbergCement is one of the frontrunners within the cement industry when it comes to emission reductions. Within the framework of our "Beyond 2020" strategy, we are forging resolutely ahead with our ambitious climate targets. We want to achieve our original target for 2030 of a 30% reduction in specific net CO₂ emissions compared with 1990 by 2025. By 2030, we intend to reduce our specific net CO₂ emissions to below 400 kg per ton of cementitious material. We operate as a frontrunner in terms of emissions reduction efforts and performance with respect to our competitors. We expect that this will influence our reputation positively and might lead to increased sales volumes and revenue, if consumers will take environmental aspects and climate protection into account in their consumer decisions for deciding between different providers of aggregates, cement and concrete applications. Additionally, HeidelbergCement is also working on sustainable products. We use a life cycle approach to measure the sustainability of our products based on their environmental, social, and economic contribution. In the reporting year, work therefore began on the development of a tool for evaluating the sustainability performance of our concrete products throughout their entire life cycle. In the future, we intend to use this to record revenue from sustainable products in our ready-mixed concrete operating line. Our Sustainable Product Portfolio tool, or SPP tool for short, has already been successfully tested in a pilot project. Through this, we can record the sustainability value contributions of our products in the categories of energy and climate, resource efficiency, social added value, and cost efficiency. The products are considered over their entire life cycle, i.e. from production, transport, and installation through to the end of life of the respective structure and the recycling of the materials. With the aid of the tool, all concrete products are assigned to four different sustainability performance classes based on their related performance.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

187000000

Potential financial impact figure – maximum (currency)

2057000000

Explanation of financial impact figure

We expect potential additional revenues ranging between 187 and 2,057 million € or approximately 1-11% per year of current revenue due to changed consumer patterns in construction that take increasingly environmental or sustainability aspects in production and performance during purchasing decisions into account. This estimation is based on the fact that in 2019, roughly 11% of the revenues in a sample of representative countries stem from sustainable products according to the PET (Product Evaluation Tool) methodology (percentage is an average over the included countries, the methodology considers market-specific sustainability performance definitions for the respective markets). Based on internal assessments we estimate that additional revenues from low carbon and sustainable products will range from 1% (minimum additional revenue due to the fact that changes in consumer patterns are expected mainly in certain countries with increased awareness for sustainability issues, e.g. Scandinavian countries, at least in the next few years) to 11% (revenues from sustainable products in 2019 according to the PET methodology) in the next approximately 10 years. Our revenue in 2021 being 18.7 billion €, 187 million € is 1 % of current revenue and 2,057 million € are 11%.

Cost to realize opportunity

123000000

Strategy to realize opportunity and explanation of cost calculation

Our low carbon transition plan as well as innovation efforts in the realm of breakthrough technologies (CCUS) ensure that we stay a frontrunner in the cement industry regarding emission reductions. As part of our Sustainability Commitments 2030, we have pledged to invest substantially in R&D towards innovative low-carbon production technologies and products, and will advance a portfolio of sustainable products in every Group country. As another example, HeidelbergCement uses a life cycle approach to measure the sustainability of our products based on their environmental, social, and economic contribution. In the reporting year, work therefore began on the development of a tool for evaluating the sustainability performance of our concrete products throughout their entire life cycle. In the future, we intend to use this to record revenue from sustainable products in our ready-mixed concrete operating line. Our Sustainable Product Portfolio tool, or SPP tool for short, has already been successfully tested in a pilot project. Through this, we can record the sustainability value contributions of our products in the categories of energy and climate, resource efficiency, social added value, and cost efficiency. Main cost associated with the management of this opportunity stem from R&D activities in the fields of consumer-related development and technical service, which focus on developing special added value products. In 2020, we spent 54.3 million € for customer-related development and technical service. This

refers to our activities of the respective national subsidiaries, the relevant departments and employees to develop and optimise the cements, aggregates, and concretes that are tailored to local needs, often in close cooperation with customers. The number is aggregated at Group level and makes up one of the main field of activities of our expenditures on research and technology (total expenditures on research and technology were 123 million € in 2020).

Comment

More information on our R&D Activities can be found in our Sustainability Report on the pages 43 ff.

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a transition plan that aligns with a 1.5°C world?

Row 1

Transition plan

Yes, we have a transition plan which aligns with a 1.5°C world

Publicly available transition plan

No

Mechanism by which feedback is collected from shareholders on your transition plan

We do not have a feedback mechanism in place, but we plan to introduce one within the next two years

Description of feedback mechanism

<Not Applicable>

Frequency of feedback collection

<Not Applicable>

Attach any relevant documents which detail your transition plan (optional)

Explain why your organization does not have a transition plan that aligns with a 1.5°C world and any plans to develop one in the future

<Not Applicable>

Explain why climate-related risks and opportunities have not influenced your strategy

<Not Applicable>

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy	Primary reason why your organization does not use climate-related scenario analysis to inform its strategy	Explain why your organization does not use climate-related scenario analysis to inform its strategy and any plans to use it in the future
Row 1	Yes, qualitative and quantitative	<Not Applicable>	<Not Applicable>

C3.2a

(C3.2a) Provide details of your organization’s use of climate-related scenario analysis.

Climate-related scenario		Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios	RCP 2.6	Company-wide	<Not Applicable>	Usage of the MRe Tool for top down assessment, complemented bottom up approach. The severity and the materialization of the risks per plant is slightly lower, the effects already experienced will intensify. The corresponding projected absolute greenhouse gas concentration in the atmosphere, will determine the speed and intensity of the impact. The assessment focuses on the potential existence of: harsh winters with extremely low temperatures, high precipitation throughout the year, floods or droughts. Heat and drought are considered the most important risks associated with the development of climatic conditions and it could poses a threat to our production sites, especially in the southern hemisphere. In terms of acute risks, i.e. event-driven risks, river flooding is a major concern for our business. According to forecasts, some operational sites that have so far had a low drought risk will become high-risk sites between 2030 and 2050. We are monitoring these long-term effects and are stepping up measures to mitigate risks and adapt to climate change. By assessing the probability of being affected by any of the aforementioned climate risk, we aim to develop a risk-specific adaptation plan for the affected locations in order to reduce their exposure within the next five years. Climate change also plays a role when it comes to the planning and implementation of takeovers. In the acquisition of new sites and companies, considering climate risks as well as different climate change scenarios and their potential impact is part of our standard due diligence. We use acquisitions as a strategic tool to achieve the goals of our CO2 roadmap.
Physical climate scenarios	RCP 4.5	Company-wide	<Not Applicable>	Usage of the MRe Tool for top down assessment, complemented bottom up approach. The severity and the materialization of the risks per plant increase in correlation with the projected absolute greenhouse gas concentration in the atmosphere. The assessment focuses on the potential existence of: harsh winters with extremely low temperatures, high precipitation throughout the year, floods or droughts. Heat and drought are considered the most important risks associated with the development of climatic conditions and it could poses a threat to our production sites, especially in the southern hemisphere. In terms of acute risks, i.e. event-driven risks, river flooding is a major concern for our business. According to forecasts, some operational sites that have so far had a low drought risk will become high-risk sites between 2030 and 2050. We are monitoring these long-term effects and are stepping up measures to mitigate risks and adapt to climate change. By assessing the probability of being affected by any of the aforementioned climate risk, we aim to develop a risk-specific adaptation plan for the affected locations in order to reduce their exposure within the next five years. Climate change also plays a role when it comes to the planning and implementation of takeovers. In the acquisition of new sites and companies, considering climate risks as well as different climate change scenarios and their potential impact is part of our standard due diligence. We use acquisitions as a strategic tool to achieve the goals of our CO2 roadmap.
Physical climate scenarios	RCP 8.5	Company-wide	<Not Applicable>	Usage of the MRe Tool for top down assessment, complemented bottom up approach. The severity and the materialization of the risks per plant is significantly high. The projected absolute greenhouse gas concentration in the atmosphere affects the identified assets. The assessment focuses on the potential existence of: harsh winters with extremely low temperatures, high precipitation throughout the year, floods or droughts. Heat and drought are considered the most important risks associated with the development of climatic conditions and it could poses a threat to our production sites, especially in the southern hemisphere. In terms of acute risks, i.e. event-driven risks, river flooding is a major concern for our business. According to forecasts, some operational sites that have so far had a low drought risk will become high-risk sites between 2030 and 2050. We are monitoring these long-term effects and are stepping up measures to mitigate risks and adapt to climate change. By assessing the probability of being affected by any of the aforementioned climate risk, we aim to develop a risk-specific adaptation plan for the affected locations in order to reduce their exposure within the next five years. Climate change also plays a role when it comes to the planning and implementation of takeovers. In the acquisition of new sites and companies, considering climate risks as well as different climate change scenarios and their potential impact is part of our standard due diligence. We use acquisitions as a strategic tool to achieve the goals of our CO2 roadmap.
Transition scenarios	IEA NZE 2050	Company-wide	<Not Applicable>	Considering tightened EU regulations (e.g. maximum emission levels, minimum required amount of recycled materials in new constructions, etc.), and potentially a similar approach from related economies, HeidelbergCement foresee the following impacts: 1. Potential cost increase due to the purchase of emission allowances; 2. Increasing carbon leakage depending on the final set up of the Carbon Border Adjustment Mechanism (CBAM); 3. Substitution of existing products with lower-emission ones; 4. Investing in technologies that could not be successful in the market; 5. Roll-out costs of new technologies; 6. Increase of operating costs: due to new regulatory measures on energy-intensive inputs, and the indirect competition for low carbon alternatives; 7. Investor preferences towards sustainable investments in companies with low CO2 emissions. On light of the above, HeidelbergCement is strongly positioned to play a key role in the transition to a low-carbon and climate-resilient economy. In the medium term, we see an opportunity in the increased demand for durable building materials that helps against the physical effects of climate change. Our goal is to provide our customers with carbon-neutral concrete by 2050 at the latest. We aim to offer a product portfolio that fulfills sustainability requirements and we are reviewing our entire product portfolio accordingly. We will advocate for the usage of CO2-reduced products with our customers (i.e. in Egypt, we succeed in reducing the average clinker content by 8.5% by consistently substituting clinker with limestone, optimizing our portfolio, and working closely with our customers). Our R&D efforts have been on the research of possible uses for recycled concrete with a special focus on the recarbonation. The aim is to bind the same amount of CO2 in the material that was previously released in the cement production. Most important capital expenditure projects in the strategic planning (2020-2024) and its financial assessment consider the underlying CO2 price assumptions (mainly based on developments in particularly regions, i.e. the EU, and the corresponding targets up to 2050). When choosing the fuel type, the cost of alternative fuels is deducted based on the proportion of biomass (considered CO2-neutral). This encourages investment in these plants accordingly, leading to emission reductions. We are aiming to increase our usage of electricity from renewable energy sources, which comes with additional costs.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

1. Exposure to key physical risks
2. Alignment of sustainability targets with business goals
3. Market demands and product requirements
4. Business development

Results of the climate-related scenario analysis with respect to the focal questions

1. In the assessment of exposure to physical risk, all production plants have been evaluated (cement, aggregates and RMC). In the most relevant production sites we performed a more detailed assessment for which we have identified specific risks. The severity of the physical risk is accounted as well as the financial and strategic considerations and the expected remaining lifespan of the respective plant. The aim is to develop risk-specific adaptation plans for the affected locations in order to reduce their exposure within the next five years. When assessing new locations, we consider the possible future impact of climate change and plan so that the locations are well adapted from the outset. 2. Climate risks are being integrated into our day-to-day business and management. For example: to ensure our environmental commitments are achieved in all business lines (cement, aggregates and RMC): the variable remuneration of all bonus-eligible employees is linked to our CO2 reduction target; and the opportunities and risks associated with our sustainability targets are increasingly being included in our (financial) planning procedures. For example, the carbon footprint of our business operations and their costs, as well as the implementation of the CO2 roadmap, are already discussed in depth at our quarterly management meetings. Substantial investments are required to achieve the targets of our CO2 roadmap. When planning the corresponding projects, assumptions about possible CO2 costs or their avoidance and their development are taken into account. This influences the expected profitability of a project and thus the decision whether to implement it or not. When choosing the fuel type, the cost of alternative fuels is deducted based on the proportion of biomass that is considered CO2-neutral. This improves the business case for alternative fuel plants and encourages investment in these plants, leading to emission reductions. 3. In the overall market, specially for cement and RMC products, we expect that the specifications will change to cope with the increasing likelihood of extreme weather events and natural disasters such as flooding and rising sea levels as a result of climate change, we expect a surge in the demand for robust concrete infrastructure, capable of withstanding and protecting against the impact of such events. In the long term, we expect an increased demand for sustainable products, and we are reviewing our entire product portfolio accordingly. 4. Climate change also plays a role when it comes to the planning and implementation of takeovers across business lines, but special focus is assigned to Cement, as clinker is the main contributor to CO2 emissions. In the acquisition of new sites and companies, considering climate risks as well as different climate change scenarios and their potential impact is part of our standard due diligence. In addition, we use acquisitions as a strategic tool to achieve the goals of our CO2 roadmap.

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	As our Strategy states in the long term, we expect an increased demand for sustainable products, therefore the roll-out of local, sustainable product portfolios in the Group countries is a key element of HeidelbergCement's climate strategy. As example, under the EcoCrete® brand, our German subsidiary Heidelberger Beton is uniting its comprehensive portfolio of sustainable concretes. Depending on the application, EcoCrete® offers between 30% and 66% CO2 reduction per cubic meter of concrete compared with the industry reference value. This reduction is achieved purely technically and without compensatory measures. EcoCrete® is available in particularly resource-saving versions with a recycling content of at least 10%. Also part of the concept are the 100% use of green electricity, the use of recycled water and the complete recyclability of the concrete in the event of subsequent demolition. HeidelbergCement sees in new technologies the opportunity to use more efficiently our resources, like 3D printing. With their comprehensive knowledge of cement and concrete, the expert teams of HeidelbergCement's global R&D functions will continue to provide high-quality products and technical know-how to architects, builders, and companies wishing to produce houses or concrete elements with 3D printers in the future. Their common goal: to adapt the traditional building material concrete to the possibilities offered by digitalization. To maintain a good understanding of the market demand, we seek to deliver more value to our customers and offer them the high quality solutions they expect. By truly understanding our customers and their needs, we are able to optimize not only our products but also our services. This can only be achieved via our digital transformation strategy, which is centered on the three digital pillars HConnect, HProduce, and HService. While HConnect aims to cover more than 75% of our global sales volume via digital interfaces to customers by 2025, HProduce and HService will focus primarily on improving efficiency and reducing costs. In September 2021, digitalization was added as a Managing Board responsibility, which is headed by the Chief Digital Officer.
Supply chain and/or value chain	Yes	Description: Climate-related risks and opportunities have influenced our strategy concerning the supply chain as we have experienced disruptions to our supply chain due to adverse / extreme weather events in the past. In Summer 2018, the low water levels in the rivers in Southern-Western Europe caused additional expenses for two of HeidelbergCement's Business lines. This affected among others the aggregates business along the Rhine river in Southern Germany. In 2019, challenges were faced in two countries in Western Africa when due to floodings caused by heavy rainfall transportation vehicles had to be rerouted with significant detours. Time horizon: We consider the time horizon covered to be short-term, because we have already experienced disruptions in our supply chain due to climate-related risks. Short-term for us means 0 to 5 years and refers to our regular financial and business planning time horizon. As we have already experienced disruptions in our supply chain due to e.g. extreme weather events, we include such issues in our short-term strategy and work on optimizing negative impacts from interruptions of the supply chain. Assuming the year 2020, the short-term planning would range up to 2025 (up to 5 years). Substantial strategic decision: In order to minimize negative impacts from interruptions of the supply chain, an international project for Logistics Efficiency Optimization was initiated within HeidelbergCement. This internal project creates and coordinates contingency plans in the Group together with the countries, such as it was the case for the examples mentioned above, and aims at network optimization, the implementation of contingency plans by optimizing the modes of transportation and counter-measures for climates-related risks and other interruptions of the supply chain. For international challenges, central functions in respective business lines cement, aggregates and readymix concrete create and coordinate contingency plans together with the countries. The project aims at continuous improvement of the supply chain management. So far, the magnitude of the impact has not been significant. Our regional diversification has ensured that disruptions have not caused substantive damage. Though we estimate that extreme weather conditions could increase logistics costs by 1 to 3% of the Group's logistics spent.
Investment in R&D	Yes	Climate-related risks and opportunities have influenced our strategy. R&D activities are driven by the ambition to lower our CO2 footprint and to make new, low-carbon cements. Time horizon: We consider to be short- to medium-term because we have been investing into rather short-term R&D projects, such as low-carbon products like the EcoCrete® as well as medium-term technologies for instance Carbon Capture. We define short-term as a time horizon of 0 to 5 years and medium-term until 2030. Substantial strategic decision: One of the main aims of R&D at HeidelbergCement is to develop innovative products as well as process improvements and new formulations, in order to minimise the use of energy, CO2 emissions, and hence costs. We invest heavily in studies and projects regarding innovative techniques for CCUS (Carbon Capture and Storage/Utilization). For example: 1. The EU-funded LEILAC (Low Emissions Intensity Lime And Cement) project, in which HeidelbergCement is one of the strategic partners, aims to demonstrate the technical and economic feasibility of process technology designed to capture CO2 in its purest form when it is released as the raw material is heated. In 2020, a decision was made to scale up the LEILAC technology to an industrial scale, therefore HeidelbergCement will work together with Australian technology company Calix and a European consortium to build a facility four times as large at the HeidelbergCement plant in Hanover. 2. AC2OCCEM (project in which HeidelbergCement participates) ongoing development of oxyfuel technology for carbon capture. In the oxyfuel process, the rotary kiln is supplied with pure oxygen instead of ambient air, which facilitates carbon capture. 3. catch4climate – applicability of oxyfuel technology to cement plants. In order to further develop the oxyfuel technology for carbon capture, HeidelbergCement participated in a joint research project to construct an oxyfuel kiln line together with four other European cement manufacturers. 4. Long term storage of CO2: CCS Brevik, Norway; Edmonton, Alberta, Canada; CCS Slite, Sweden; HyNet North West in Padeswood plant, United Kingdom.
Operations	Yes	Description: HeidelbergCement aims to increase the proportion of alternative fuels used across the Group, helping us to meet our commitment to reduce CO2 emissions to almost half of 1990 levels by 2030. For example, in our cement plant in Couvrot, France, we realised a project to feed alternative fuels into the calciner. In 2021, the proportion of alternative fuels in the fuel mix was 26.6%. By 2030, we intend to raise this figure to 45%. Plant modernizations like investments into best available technology are also to an extent driven by the climate-related risks identified, such as plants not being able to be competitive anymore in the future if they emit too much CO2. Time horizon: We consider the time horizon covered to be short- to medium-term, because we have a low carbon transition plan in place which identifies on a plant-by-plant level which emission reduction levers may be used and to what extent until 2030. We define short-term as a time horizon of 0 to 5 years and medium-term until 2030. As part of the low carbon transition plan, which refers to a 2030 time frame, we have already invested in emission reduction initiatives in our operations in the past years as well as in 2020 and will continue to do so until 2030, which is the reason why we consider short- and medium-term time horizons. Substantial strategic decision: Climate-related risks and opportunities have impacted our strategy regarding our operations insofar that in 2019/2020, we have decided to create a low carbon transition plan which considers local conditions for each plant and then outlines the emission reduction levers that will be used there. It defines the specific measures for each plant, such as implementation of alternative fuels or improving plant efficiency e.g. through modernization. The defined measures serve to reach our goal of specific net CO2 emissions reduction to below 500 kg per tonne of cementitious material by 2030. With this global strategy e.g. regarding alternative fuels, many operations have been impacted by climate-related risks and opportunities, with large investments having taken place, such as kiln refurbishments/ modernizations or constructions among others at our plant Airvault in France in 2020. The impact is likely to increase with plants not being able to be competitive anymore if they emit too much CO2.

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Indirect costs Capital expenditures Acquisitions and divestments Assets	Climate-related risks and opportunities have influenced multiple elements of our financial planning: Climate-related opportunities have influenced our financial planning concerning revenues insofar that low carbon products and so-called value-add products are a revenue stream for us. For instance, the percentage of low carbon concrete products (concrete based on a cementitious mix with Clinker factor <= 65%) is around 50% in a sample of four pilot countries (Germany, UK, Poland and Belgium), in which we collected data in 2020. We estimate the demand for low carbon products to grow and therefore expect growing revenues from such products. This is implicitly factored into the revenue planning process as a group of products. We expect this opportunity to be realized in a medium-term time horizon (defined as 5 to 10 years), which refers to a time horizon until 2030. Therefore, we have included investing substantially in R&D towards innovative low-carbon production technologies and products in our Sustainability Commitments 2030 which were published in 2017 and set targets to be reached by 2030. Climate-related risks have also influenced our financial planning: As an example cap and trade schemes such as the EU ETS have already impacted our financial planning regarding indirect costs. Currently our operations in Europe, North America and Guangdong (China) are affected by ETS systems and Canada is operating under a CO2 tax. We have estimated additional costs in all mentioned cap and trade schemes until 2030 with a forecasting and scenario model, which is factored into our operating costs planning. For all emission trading schemes and CO2 taxes that we are currently operating under, the estimated figure per year is roughly twice the amount. The time horizon of this planning is short- (0 to 5 years) to medium-term (until 2030), as we already factor in risks related to cap and trade schemes now and are doing so until 2030. Furthermore, a considerable amount of our CAPEX is related to emission reduction as laid out in our low carbon transition plan. In that respect, for instance risks related to cap and trade schemes have impacted our CAPEX, especially in the EU where we are subject to the EU Emission Trading Scheme. For example in 2020, we have finished several investment projects, among others modernization projects in France to equip plants with the most recent technology, whereby we are reducing our carbon footprint. Other investments have been made in the Norcem CCS project that has completed the testing phase and is now ready for scaling up. Construction of the new plant in Brevik has already started and the capture of CO2 for the cement production process is scheduled to begin in 2024. The aim is to capture 400,000 tonnes CO2 annually. Furthermore, an investigation of the cutting-edge technology LEILAC is conducted in Lixhe, Belgium. The LEILAC 2 pilot project aims to implement LEILAC technology on an industrial scale at our cement plant in Hannover, Germany, by 2025. The time horizon of this planning is short- (0 to 5 years) to medium-term (until 2030), as we integrate projects like the modernization/ construction of kilns completed in 2020, as well as medium-term projects like the investments in Carbon Capture until 2030. We also take into account climate-related issues such as specific CO2 emissions when considering an acquisition. We especially focus on the potential to improve the acquisition target's CO2 performance. For instance, when we acquired Cementir's Italian cement operations, climate-related risks and opportunities were taken into account and factored in financially.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's transition to a 1.5°C world?

No, but we plan to in the next two years

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Intensity target

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Year target was set

2022

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2 accounting method

<Not Applicable>

Scope 3 category(ies)

<Not Applicable>

Intensity metric

Other, please specify (Metric tons CO2/ ton of cementitious material)

Base year

1990

Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)

82621679

Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in base year for Scope 3 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)

0.750845

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

99

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

<Not Applicable>

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure

<Not Applicable>

% of total base year emissions in all selected Scopes covered by this intensity figure

99

Target year

2030

Targeted reduction from base year (%)

46.7

Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]

0.400200385

% change anticipated in absolute Scope 1+2 emissions

19

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)

0.565

Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in reporting year for Scope 3 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

0.507

% of target achieved relative to base year [auto-calculated]

69.5419206708764

Target status in reporting year

Underway

Is this a science-based target?

Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

Target ambition

Well-below 2°C aligned

Please explain target coverage and identify any exclusions

As part of our Sustainability Commitments 2030, "We are committed to fulfilling our share of the global responsibility to keep temperature rise 1.5° Celsius, and we will continue to reduce our impacts on air, land and water." We significantly tightened our CO2 reduction targets in 2022, our intention is to reduce by 47% our emissions by 2030 vs 1990. The target is a Group-wide target. So far, we have achieved a 25% reduction. We are currently well underway to achieving this target, with the way forward being informed by our comprehensive and plant-by-plant low carbon strategic plan coordinated in a regular Steering Committee with three permanent members of the Managing Board including CSO, the Group Directors of Environmental Social Governance and of Strategy & Development, Research & Development and Competence Center Cement, together with all General Managers in the respective countries. Our initial target from 2018/19 has been approved as WB2D in early 2022. With the newly updated climate ambition to 400kgCO2/tCEM in 2030, we follow the principles outlined by the IEA Pathway to Net-Zero Report from 2021 and applied by the SBTi in their upcoming framework for the Sectoral Decarbonization Approach (SDA) for the cement sector which translates in a 1.5°C 2030 ambition. HeidelbergCement is confident that the official verification from the SBTi for the 1.5°C will be achieved after the framework is finalized. HeidelbergCement also participates in the Expert Advisory Group for the 1.5°C Cement SDA since mid of 2021. Following the current timeline, SBTi will release their guideline in July - August 2022 – HeidelbergCement has scheduled the official verification with SBTi for September 2022 to be verify the updated target. HeidelbergCement furthermore signed the "Race to Zero" Business Ambition for 1.5°C Commitment, a global initiative aimed at limiting global warming to 1.5°C and achieving net zero carbon emissions by 2050 at the latest, underlining our continuous leadership to drive the sector's decarbonization efforts. We will officially verify our 2050 Net-Zero Ambition in September 2022 - so far we are officially "committed" based on SBTi standard.

Plan for achieving target, and progress made to the end of the reporting year

In the reporting year 2021, HeidelbergCement was able to reduce the specific net CO2 emissions by a further 1.9% to 565 (previous year: 576) kg CO2/t of cementitious material. We achieved to further increase the share of alternative fuels while working at the same time on increasing the efficiency of the kiln lines. The clinker factor was reduced by 1.4 percentage points. Especially in regions with high clinker factors, an improvement was achieved by optimizing the product portfolio.

List the emissions reduction initiatives which contributed most to achieving this target

<Not Applicable>

Target reference number

Int 2

Year target was set

2017

Target coverage

Company-wide

Scope(s)

Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

<Not Applicable>

Intensity metric

Other, please specify (Metric tons CO2/ ton of cementitious material)

Base year

2016

Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)

0.046

Intensity figure in base year for Scope 3 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)

0.046

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

<Not Applicable>

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

99

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure

<Not Applicable>

% of total base year emissions in all selected Scopes covered by this intensity figure

99

Target year

2030

Targeted reduction from base year (%)

65

Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]

0.0161

% change anticipated in absolute Scope 1+2 emissions

19

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)

0.042

Intensity figure in reporting year for Scope 3 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

0.042

% of target achieved relative to base year [auto-calculated]

13.3779264214047

Target status in reporting year

Underway

Is this a science-based target?

Yes, and this target has been approved by the Science Based Targets initiative

Target ambition

Well-below 2°C aligned

Please explain target coverage and identify any exclusions

As part of our Sustainability Commitments 2030, "We are committed to fulfilling our share of the global responsibility to keep temperature rise 1.5° Celsius, and we will continue to reduce our impacts on air, land and water." This entails a reduction of specific scope 2 emissions by 65% in 2030 compared to 2016, measured in kg of CO2/tonne of cementitious product. The target is a Group-wide target. We are currently well underway to achieving this target, with the way forward being coordinated in a regular Steering Committee with three permanent members of the Managing Board, the Group Directors of Environmental Social Governance and of Strategy & Development, Research and Development and Competence Center Cement, together with all General Managers in the respective countries. Our initial target from 2018/19 has been confirmed by the SBTi for 2D at that time. We have handed in our approval to upgrade our target to WB2D in early 2022. With the newly updated climate ambition until 2030, we follow the principles outlined by the IEA Pathway to Net-Zero Report from 2021 and applied by the SBTi in their upcoming framework for the Sectoral Decarbonization Approach (SDA) for the cement sector which translates in a 1.5°C 2030 ambition. HeidelbergCement is confident that the official verification from the SBTi for the 1.5°C will be achieved after the framework is finalized. HeidelbergCement also participates in the Expert Advisory Group for the 1.5°C Cement SDA since mid of 2021. Following the current timeline, SBTi will release their guideline in July-

Plan for achieving target, and progress made to the end of the reporting year**List the emissions reduction initiatives which contributed most to achieving this target**

<Not Applicable>

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Target(s) to increase low-carbon energy consumption or production
Net-zero target(s)

C4.2a

(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.

Target reference number

Low 1

Year target was set

2017

Target coverage

Company-wide

Target type: energy carrier

Heat

Target type: activity

Consumption

Target type: energy source

Low-carbon energy source(s)

Base year

1990

Consumption or production of selected energy carrier in base year (MWh)**% share of low-carbon or renewable energy in base year****Target year**

2030

% share of low-carbon or renewable energy in target year**% share of low-carbon or renewable energy in reporting year****% of target achieved relative to base year [auto-calculated]**

<Calculated field>

Target status in reporting year

Please select

Is this target part of an emissions target?

We use waste materials and by-products from other industries as alternatives to fossil fuels in the production of cement. In this way, we are helping to conserve resources and solve the problems associated with waste disposal faced by municipalities and industrial companies near our plants. At the same time, these efforts are reducing our CO2 emissions, because the biomass that accounts for around 41.9% of the alternative fuel mix is classified as climate neutral. Our Alternative Fuel Master Plan project was launched in mid-2018 and is followed up and updated on a bi-annual basis and aims to increase the proportion of alternative fuels across the Group, helping us to meet our commitment to reduce CO2 emissions by 2030.

Is this target part of an overarching initiative?

Science Based Targets initiative

Please explain target coverage and identify any exclusions

As part of our Sustainability Commitments 2030, "We are committed to fulfilling our share of the global responsibility to keep temperature rise at 1.5° Celsius, and we will continue to reduce our impacts on air, land and water." This entails an increase of our alternative fuels rate to at least 45% by 2030. The target is a Group-wide target (company-wide). In 2021, our alternative fuel rate was 26.4% (incl. Biomass) which means that we are well underway to achieve our target.

Plan for achieving target, and progress made to the end of the reporting year

<Not Applicable>

List the actions which contributed most to achieving this target

<Not Applicable>

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number

NZ1

Target coverage

Product-level

Absolute/intensity emission target(s) linked to this net-zero target

Not applicable

Target year for achieving net zero

2050

Is this a science-based target?

Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next 2 years

Please explain target coverage and identify any exclusions

We will achieve Net-Zero on Group level by 2050 at the latest. To achieve this, tried-and-tested techniques and measures, such as maximising the use of alternative fuels, optimising the product mix, and improving the efficiency of our plants which are key conventional levers to achieve emissions reduction improvement will be extended by the large scale use and application of new technologies such as the capture and use/storage (CCU/S) of CO₂; while improving our efforts in the circular economy, such as offering circular alternatives for half of our concrete products. These advanced levers are part of our updated 2030 ambition and combine technologies currently researched and tested in several industrial applications and on growing larger scale. HeidelbergCement signed the "Race to Zero" Business Ambition for 1.5°C Commitment, a global initiative aimed at limiting global warming to 1.5°C and achieving net zero carbon emissions by 2050 at the latest, underlining our continuous leadership to drive the sector's decarbonisation efforts. We will officially verify our 2050 Net-Zero Ambition in September 2022 - so far we are officially "committed" based on SBTi standard.

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?

Yes

Planned milestones and/or near-term investments for neutralization at target year

Continuous investments are done for CCUS projects, Brevik will be the first operational plant by 2024. While the 6 remaining projects are still under feasibility analysis.

Planned actions to mitigate emissions beyond your value chain (optional)

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO₂e savings.

	Number of initiatives	Total estimated annual CO ₂ e savings in metric tonnes CO ₂ e (only for rows marked *)
Under investigation	60	
To be implemented*	35	1011811
Implementation commenced*	29	668460
Implemented*	80	1498874
Not to be implemented		

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
---	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

220

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

86000

Investment required (unit currency – as specified in C0.4)

168000

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

Initiative category & Initiative type

Low-carbon energy consumption	Other, please specify (PPAS)
-------------------------------	------------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

407376

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

3558000

Investment required (unit currency – as specified in C0.4)

52000000

Payback period

4-10 years

Estimated lifetime of the initiative

21-30 years

Comment

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for low-carbon product R&D	It is a target of our Sustainability Commitments 2030 to invest substantially in R&D towards innovative low-carbon production technologies and products. Already at this point, the development of low-carbon products such as the EcoPlus® Range plays a crucial role in our R&D efforts. In this product range being able to replace up to 70% of Portland Cement (CEM) in a concrete mix with Hanson Regen (Ground Granulated Blast furnace Slag or 'GGBS'), we have developed a product that has a much lower level of embodied CO2 than if ordinary cement was used at our UK subsidiary.
Internal price on carbon	We have introduced a dynamic internal carbon price, used for the main CAPEX projects for the next strategic planning exercise (2020-2024) as well as in the financial assessment informing our due diligence e.g. new installations or capacity increases in the cement business line, as this is our most energy- and CO2-intensive business line. For instance, when choosing the type of fuel, the cost of alternative fuels is discounted because of the biomass content that is considered to be carbon neutral. This increases the business case for the choice of alternative fuel installations and therefore drives investments in those, which leads to emission reductions.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Group of products or services

Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify (Green Business Council for Concrete, GCCA transition pathway for Cement)

Type of product(s) or service(s)

Buildings construction and renovation	Other, please specify (Cement, RMC)
---------------------------------------	-------------------------------------

Description of product(s) or service(s)

Sustainable building materials with the lowest possible carbon footprint are playing an increasingly important role for us and our customers. In line with our Sustainability Commitments 2030, we are making substantial investments in researching and developing innovative low-carbon production technologies and products. In dialogue with our customers, the responsible staff in the Group countries explore the need for new sustainable products for their respective markets. The development of these products is often supported by the Global Research & Development. The topic of sustainable products is assigned to the Group department ESG Programs in the Sustainability Office. The use of by-products from other industrial sectors for the production of clinker and cement and the recycling of demolition concrete allow us to manufacture concrete in a more resource-efficient way and thus lower CO2 emissions. A significant part of our research and development work is aimed at developing new cement and concrete formulations in order to minimize energy consumption and CO2 emissions, and thereby also reduce our environmental impact and costs. Our German subsidiary Heidelberger Beton, for example, offers a comprehensive portfolio of sustainable concretes under the brand name EcoCrete®, which, depending on the application, offer up to 66% CO2 reduction per m3 of concrete in comparison with the industry reference. This reduction is achieved purely technically and without compensatory measures.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Other, please specify (Based on GCCA CO2 Accounting methodology a cement is considered Sustainable with 30% emission reduction compared to a CEMI based on 2019/2020 industry average. Concrete is considered sustainable with less than 5.5kgCO2/m³/MPa)

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Cradle-to-gate

Functional unit used

The topic of sustainable products is assigned to the Group department ESG Programs, Group Research & Development and Competence Center Cement. This is part of the Sustainability Office, headed by the CSO.

Reference product/service or baseline scenario used

Global Cement and Concrete Association (GCCA) industry average emissions are considered for the baseline year of 2019/2020. Improvement scenarios are considered following the logic of the Green Business Council for Concrete and the GCCA transition pathway for Cement

Life cycle stage(s) covered for the reference product/service or baseline scenario

Cradle-to-gate

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

234

Explain your calculation of avoided emissions, including any assumptions

A standard Portland cement as a reference product, this has a clinker content of 95%, which considering the emissions of clinker 780 kg/ton of clinker shows that a typical Portland cement will contain ~741 kg CO2 /ton of cement. Low carbon products should achieve a reduction of minimum 30% vs the base product (Portland cement), therefore the clinker content in this cement types should be as minimum 65%, which applied to the current clinker emission factor result on 507 kg CO2 /t of cement, bringing 234 kg CO2/ton of cement as avoided emissions for this type of products.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

24

C-CE4.9

(C-CE4.9) Disclose your organization's best available techniques as a percentage of Portland cement clinker production capacity.

	Total production capacity coverage (%)
4+ cyclone preheating	15
Pre-calcliner	80

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

Yes, a divestment

Name of organization(s) acquired, divested from, or merged with

NAM West Coast divested for Cement in Q3/2021

Details of structural change(s), including completion dates

NAM West Coast divested for Cement in Q3/2021

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	No	<Not Applicable>

C5.1c

(C5.1c) Have your organization's base year emissions been recalculated as result of the changes or errors reported in C5.1a and C5.1b?

	Base year recalculation	Base year emissions recalculation policy, including significance threshold
Row 1	No, because the impact does not meet our significance threshold	With our initial SBTi application from 2018/19 for the 2D Cement Sectoral Decarbonization Approach the overall cement volume was at total ~136mt of cementitious material for HeidelbergCement Group. The divestment of Northern America West Coast cement business accounts for ~2mt of cementitious material per year. For our voluntary ambition update to WB2D, initiated in early 2022, we did not consider the divestment for the recalculation of the baseline year of 2016, as the impact is below <2% of total cementitious volume. With the updated 2030 ambition level, we have scheduled the official verification with SBTi for September 2022, with the intend to go for 2020 as the new baseline year for the new SBTi verification for our ambition in line with the 1.5°C Cement SDA, we will adjust the volumes to the latest Group consolidation accordingly.

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start

January 1 1990

Base year end

December 31 1990

Base year emissions (metric tons CO2e)

83122247

Comment

Our sustainability-related key figures can be found in our Sustainability Report on pages 92ff.

Scope 2 (location-based)

Base year start

January 1 1990

Base year end

December 31 1990

Base year emissions (metric tons CO2e)

6621667

Comment

Our sustainability-related key figures can be found in our Sustainability Report on pages 92ff. For Scope 2 emissions, we excluded net inbound/outbound clinker which is part of the assured figure in accordance with the GCCA Guidelines in the Report.

Scope 2 (market-based)**Base year start****Base year end****Base year emissions (metric tons CO2e)****Comment**

For 1990, no market-based Scope 2 emission figure is available.

Scope 3 category 1: Purchased goods and services**Base year start**

January 1 2019

Base year end

December 31 2019

Base year emissions (metric tons CO2e)

9400000

Comment

Estimated values

Scope 3 category 2: Capital goods**Base year start****Base year end****Base year emissions (metric tons CO2e)****Comment**

As capital goods is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)**Base year start**

January 1 2019

Base year end

December 31 2019

Base year emissions (metric tons CO2e)

3900000

Comment

Estimated values

Scope 3 category 4: Upstream transportation and distribution**Base year start**

January 1 2019

Base year end

December 31 2019

Base year emissions (metric tons CO2e)

9400000

Comment

Total transportation (up-/downstream) considered under one category

Scope 3 category 5: Waste generated in operations**Base year start****Base year end****Base year emissions (metric tons CO2e)****Comment**

As Waste generated in operations is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Scope 3 category 6: Business travel**Base year start****Base year end****Base year emissions (metric tons CO2e)****Comment**

As business travel is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Scope 3 category 7: Employee commuting

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

As Employee commuting is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

As Upstream leased assets is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Scope 3 category 9: Downstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

see above in "Upstream Transportation"

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

As processing of sold products is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

As use of sold products is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Scope 3 category 12: End of life treatment of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

As end of life treatment of sold products is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

As downstream leased assets is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

As franchises is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

As investments is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

European Union Emission Trading System (EU ETS): The Monitoring and Reporting Regulation (MMR) – General guidance for installations
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
The Greenhouse Gas Protocol: Scope 2 Guidance
WBCSD: The Cement CO2 and Energy Protocol
Other, please specify (Internal developed methodology for categories not fully available in current guidelines)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

69045109

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

HeidelbergCement AG consolidated Scope, incl. all country affiliates with full financial and management control.

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

The data differs in countries with de-regulated markets such as European, Asian and North American markets. In regulated markets the location-based and market-based figures are the same. This applies to some African countries.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

5178977

Scope 2, market-based (if applicable)

5135069

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

HeidelbergCement AG consolidated Scope, incl. all country affiliates with full financial and management control. Data snapshot from 21.07.2022 - to be updated once final data available for all countries.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

8138348

Emissions calculation methodology

Hybrid method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

General environmental information is received from suppliers, but not CO2 emissions related.

Capital goods

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

As capital goods is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

3657067

Emissions calculation methodology

Hybrid method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

No information available from suppliers.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

8200000

Emissions calculation methodology

Hybrid method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Upstream and downstream transportation figure as presented in the sustainability report page 91

Waste generated in operations

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

As waste generated in operations is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Business travel

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

As Business Travel is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Employee commuting

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

As Employee commuting is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

As Upstream leased assets is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

8200000

Emissions calculation methodology

Hybrid method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Upstream and downstream transportation figure as presented in the sustainability report page 91

Processing of sold products

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

As processing of sold products is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Use of sold products

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

As Use of sold products is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

As end of life treatment of sold products is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

As Downstream leased assets of sold products is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Franchises

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

As Franchises is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Investments

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

As Investments is not one of the material categories as outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA), we have not evaluated it. We have focused on the four mandatory categories.

Other (upstream)

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

8200000

Emissions calculation methodology

Hybrid method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Upstream and downstream transportation figure as presented in the sustainability report page 91

Other (downstream)

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

There are no other relevant categories outlined in the Cement Sector Scope 3 GHG Accounting and Reporting Guidance issued by the WBCSD Cement Sustainability Initiative (now GCCA). We have focused on the four mandatory categories.

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

Yes

C6.7a

(C6.7a) Provide the emissions from biogenic carbon relevant to your organization in metric tons CO2.

	CO2 emissions from biogenic carbon (metric tons CO2)	Comment
Row 1	3081828	Absolute CO2 from biomass sources (including biomass content of mixed fuels), based on the GCCA Scope 1 Reporting, following the principles of the Greenhouse Gas Protocol

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

607

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

74224086

Metric denominator

metric ton of product

Metric denominator: Unit total

5178977

Scope 2 figure used

Location-based

% change from previous year

2

Direction of change

Increased

Reason for change

Increase of production.

C-CE6.11

(C-CE6.11) State your organization's Scope 1 and Scope 2 emissions intensities related to cement production activities.

	Gross Scope 1 emissions intensity, metric tons CO2e per metric ton	Net Scope 1 emissions intensity, metric tons CO2e per metric ton	Scope 2, location-based emissions intensity, metric tons CO2e per metric ton
Clinker	0.826	0.78	0.046
Cement equivalent	0.616	0.581	0.043
Cementitious products	0.599	0.565	0.042
Low-CO2 materials	0	0	

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

No

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
Other, please specify (Rest of the world)	69045109
Germany	5120814

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Western and Southern Europe	16543041
Northern and Eastern Europe - Central Asia	14563773
North America	8622586
Asia - Pacific	20033873
Africa - Eastern Mediterranean Basin	9281837

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions, metric tons CO2e	Comment
Cement production activities	69045109	64579267	HeidelbergCement AG consolidated view - incl. all country affiliates with full financial and management control
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Germany <i>The higher market-based figure is due to the laws governing energy-intensive industries in Germany, the so-called EEG-Umlagenbefreiung.</i>	315402	503083
Other, please specify (Rest of the world)	5178977	5135069

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Western and Southern Europe	779220	841878
Northern and Eastern Europe - Central Asia	1114884	1137229
North America	1000141	891091
Asia-Pacific	1513261	1721953
Africa - Eastern Mediterranean Basin	771471	542919

C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7

(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	4807516	4818711	HeidelbergCement AG consolidated view - incl. all country affiliates with full financial and management control
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	1225291	Decreased	2	Additional projects increasing the usage of renewable energies sources, as listed in chapter 8.
Other emissions reduction activities		<Not Applicable>		
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output	1058598	Increased	1.4	Clinker and cement production increased by 2% in comparison with 2020.
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 10% but less than or equal to 15%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	No

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	9164808	79165566	88330374
Consumption of purchased or acquired electricity	<Not Applicable>	2226778	10071888	12298666
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Total energy consumption	<Not Applicable>	11391586	89237454	100629039

C-CE8.2a

(C-CE8.2a) Report your organization's energy consumption totals (excluding feedstocks) for cement production activities in MWh.

	Heating value	Total MWh
Consumption of fuel (excluding feedstocks)	LHV (lower heating value)	84625586
Consumption of purchased or acquired electricity	<Not Applicable>	12298666
Consumption of other purchased or acquired energy (heat, steam and/or cooling)	<Not Applicable>	<Not Applicable>
Total energy consumption	<Not Applicable>	96924252

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

Heating value

LHV

Total fuel MWh consumed by the organization

9164808

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

9164808

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Other biomass

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Other renewable fuels (e.g. renewable hydrogen)

Heating value

Unable to confirm heating value

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

No other renewable used.

Coal

Heating value

LHV

Total fuel MWh consumed by the organization

35503636

MWh fuel consumed for self-generation of electricity

1020878

MWh fuel consumed for self-generation of heat

34482758

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Oil

Heating value

LHV

Total fuel MWh consumed by the organization

618503

MWh fuel consumed for self-generation of electricity

618503

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Gas

Heating value

LHV

Total fuel MWh consumed by the organization

10712117

MWh fuel consumed for self-generation of electricity

1076295

MWh fuel consumed for self-generation of heat

9635822

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

32331311

MWh fuel consumed for self-generation of electricity

80549

MWh fuel consumed for self-generation of heat

32250762

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Total fuel

Heating value

LHV

Total fuel MWh consumed by the organization

88330375

MWh fuel consumed for self-generation of electricity

2796225

MWh fuel consumed for self-generation of heat

85534150

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

C-CE8.2c

(C-CE8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel for cement production activities.

Sustainable biomass

Heating value

LHV

Total MWh fuel consumed for cement production activities

9164808

MWh fuel consumed at the kiln

9164808

MWh fuel consumed for the generation of heat that is not used in the kiln

0

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Other biomass

Heating value

Total MWh fuel consumed for cement production activities

0

MWh fuel consumed at the kiln

0

MWh fuel consumed for the generation of heat that is not used in the kiln

0

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Other renewable fuels (e.g. renewable hydrogen)

Heating value

Total MWh fuel consumed for cement production activities

0

MWh fuel consumed at the kiln

0

MWh fuel consumed for the generation of heat that is not used in the kiln

0

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Coal

Heating value

LHV

Total MWh fuel consumed for cement production activities

35503636

MWh fuel consumed at the kiln

34416333

MWh fuel consumed for the generation of heat that is not used in the kiln

66425

MWh fuel consumed for the self-generation of electricity

1020878

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Oil

Heating value

LHV

Total MWh fuel consumed for cement production activities

618503

MWh fuel consumed at the kiln

0

MWh fuel consumed for the generation of heat that is not used in the kiln

0

MWh fuel consumed for the self-generation of electricity

618503

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Gas**Heating value**

LHV

Total MWh fuel consumed for cement production activities

10712117

MWh fuel consumed at the kiln

8873735

MWh fuel consumed for the generation of heat that is not used in the kiln

762086

MWh fuel consumed for the self-generation of electricity

1076295

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Other non-renewable fuels (e.g. non-renewable hydrogen)**Heating value**

Unable to confirm heating value

Total MWh fuel consumed for cement production activities

30804245

MWh fuel consumed at the kiln

29547251

MWh fuel consumed for the generation of heat that is not used in the kiln

1176445

MWh fuel consumed for the self-generation of electricity

80549

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Total fuel**Heating value**

LHV

Total MWh fuel consumed for cement production activities

86803308

MWh fuel consumed at the kiln

82605498

MWh fuel consumed for the generation of heat that is not used in the kiln

2020088

MWh fuel consumed for the self-generation of electricity

2177722

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero or near-zero emission factor in the market-based Scope 2 figure reported in C6.3.

Sourcing method

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

Energy carrier

Electricity

Low-carbon technology type

Solar

Country/area of low-carbon energy consumption

Morocco

Tracking instrument used

Contract

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

233985

Country/area of origin (generation) of the low-carbon energy or energy attribute

Morocco

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**Comment**

Sourcing method

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

Energy carrier

Electricity

Low-carbon technology type

Solar

Country/area of low-carbon energy consumption

India

Tracking instrument used

Contract

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

38501

Country/area of origin (generation) of the low-carbon energy or energy attribute

India

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**Comment**

Several sources, solar, wind, etc. with different commission dates

Sourcing method

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

Energy carrier

Electricity

Low-carbon technology type

Solar

Country/area of low-carbon energy consumption

United Kingdom of Great Britain and Northern Ireland

Tracking instrument used

Contract

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

10618.36

Country/area of origin (generation) of the low-carbon energy or energy attribute

United Kingdom of Great Britain and Northern Ireland

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**Comment**

Several sources, solar, wind, etc. with different commission dates

Sourcing method

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

Energy carrier

Electricity

Low-carbon technology type

Wind

Country/area of low-carbon energy consumption

Norway

Tracking instrument used

Contract

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

253851

Country/area of origin (generation) of the low-carbon energy or energy attribute

Norway

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**Comment**

Low carbon energy mix.

C8.2g

(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.

Country/area

Other, please specify (Western Southern Europe)

Consumption of electricity (MWh)

3232895

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

3232895

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Other, please specify (Northern Eastern Europe Central Asia)

Consumption of electricity (MWh)

2717179

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

2717179

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Other, please specify (Northern America)

Consumption of electricity (MWh)

1773361

Consumption of heat, steam, and cooling (MWh)

Total non-fuel energy consumption (MWh) [Auto-calculated]

<Calculated field>

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Other, please specify (APAC)

Consumption of electricity (MWh)

3057125

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

3057125

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Other, please specify (AEM)

Consumption of electricity (MWh)

1597098

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

1597098

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Energy usage

Metric value

297377

Metric numerator

TeraJoule

Metric denominator (intensity metric only)

No intensity metric

% change from previous year

2.3

Direction of change

Decreased

Please explain

HeidelbergCement AG consolidated view - incl. all country affiliates with full financial and management control. Total Kiln Fuel Consumption and Drying of raw materials and fuels in terajoules (TJ) per year

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	In 2021, the total expenditure on research and development amounted to €123.6 millions in (previous year: 120.0), corresponding to 0.7% of Group revenue. The development projects that were capitalized as investments include, among others, low-carbon concretes as well as new composite cements. In 2021, capitalized development costs total €0.8 million (previous year: 1.0), which corresponds to around 0.7% of total expenditure on research and development.

C-CE9.6a

(C-CE9.6a) Provide details of your organization's low-carbon investments for cement production activities over the last three years.

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Carbon capture, utilization and storage (CCUS)	Pilot demonstration	≤20%		HeidelbergCement invests in different projects regarding CCUS, such as the EU-funded LEILAC (Low Emissions Intensity Lime And Cement) project at our plant in Lixhe, Belgium, a project for capture and storage at our plant in Brevik, Norway, as well as the use of CO2 to produce microalgae at our Safi plant in Morocco. We are also involved in projects such as AC2OCEM and catch4climate for further research into the Oxyfuel technology. The projects are in different development stages.
Fuel switching	Large scale commercial deployment	≤20%		We launched our Alternative Fuel Master Plan project in mid-2018. It aims to increase the proportion of alternative fuels across the Group, helping us to meet our commitment to reduce CO2 emissions by 2030. During the past years, we made various investments in the use of alternative fuels and this pays off: the AF-rate has increased substantially from 22.0% in 2018 to 25.7% in 2020. For example, in 2020 in our cement plant in Vác, Hungary, we implemented a project to supply alternative fuels directly to the main burner which has allowed the plant to significantly increase the proportion of alternative fuels used.
Low clinker cement	Small scale commercial deployment	≤20%		We use alternative raw materials as additives that allow us to reduce the proportion of CO2-intensive clinker in cement. We use for example blast furnace slag from steel production operations as well as fly ashes, a by-product from coal-fired power plants. Moreover, in Africa, for example, we use ground rock from local quarries as an additional component in cement production, thereby replacing imported clinker with local raw materials. At Group level, the proportion of alternative raw materials in cement production was 11.4% in 2020; the clinker proportion in cement was 74.3%.
Alternative low-CO2 cements/binders	Small scale commercial deployment	≤20%		We engage in research on the development of alternative binders that do not necessarily require conventional clinker or lower the amount of conventional clinker used. One example is our product i.tech® 3D which was used in the first 3D printed residential building installed in 2020 in Germany. The printing material was developed with sustainability in mind, as it is purely mineral and the binder it contains has a carbon footprint that is around 70% lower than that of Portland cement.
Other, please specify (Recarbonation of concrete fines)	Applied research and development	≤20%		By recarbonating the materials generated in concrete recycling, we can return CO2 to the cement and concrete materials cycle. We engage in multiple research projects regarding this topic, e.g. in the project C2inCO2 which aims at making use of the principle of the natural carbonation reaction of concretes during their life cycle in a targeted way and on an industrial scale to bind CO2 again as calcium carbonate in recycled concrete components so that they can be used in the production of construction materials.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

NFE Vermerk_HC_AG_Mazars_ISAE3000_sustainability_2021_Nr 1.pdf
Sustainability-report-HeidelbergCement-2021.pdf

Page/ section reference

Appendix Nr.1, p. 2. Please note that this assurance refers to the data provided for the business line cement according to the GCCA Guidelines only.

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

99

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

NFE Vermerk_HC_AG_Mazars_ISAE3000_sustainability_2021_signed.pdf

Page/ section reference

It is noteworthy here that the assured figure corresponds to Emissions from external power generation for the cement business line as defined in the GCCA Guidelines.

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

99

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category

Scope 3: Purchased goods and services

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

NFE Vermerk_HC_AG_Mazars_ISAE3000_sustainability_2021_signed.pdf

Page/section reference

Appendix 1, p. 2. Please note that this assurance refers to the data provided for the business line cement according to the GCCA Guidelines only.

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

99

Scope 3 category

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

NFE Vermerk_HC_AG_Mazars_ISAE3000_sustainability_2021_signed.pdf

Page/section reference

Appendix 1, p. 2. Please note that this assurance refers to the data provided for the business line cement according to the GCCA Guidelines only.

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

99

Scope 3 category

Scope 3: Upstream transportation and distribution

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

Page/section reference

p. 91 (Sustainability report)

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

99

Scope 3 category

Scope 3: Downstream transportation and distribution

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

NFE Vermerk_HC_AG_Mazars_ISAE3000_sustainability_2021_signed.pdf

Page/section reference

Please note that upstream and downstream transportation and distribution are assured in one figure.

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

99

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C8. Energy	Other, please specify (Fuels and heat generated (TJ/year))	ISAE3000, limited assurance	All percentages of conventional and alternative fuels are verified. Furthermore, the heat generated with those fuels (in TJ/year) is verified and broken down by fuel. All this can be seen on p. 3 in Appendix 1 of the Assurance Report.

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

Alberta TIER - ETS
BC carbon tax
Canada federal Output Based Pricing System (OBPS) - ETS
EU ETS
Québec CaT - ETS
Sweden carbon tax

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

Alberta TIER - ETS

% of Scope 1 emissions covered by the ETS
100

% of Scope 2 emissions covered by the ETS
100

Period start date
January 1 2021

Period end date
December 31 2021

Allowances allocated
753418

Allowances purchased
0

Verified Scope 1 emissions in metric tons CO₂e
595511

Verified Scope 2 emissions in metric tons CO₂e
51212

Details of ownership
Facilities we own and operate

Comment
Information on the Emissions trading systems we operate under can be found in the Sustainability Report on page XX

Canada federal OBPS - ETS

% of Scope 1 emissions covered by the ETS

100

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1 2021

Period end date

December 31 2021

Allowances allocated

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

Information on the Emissions trading systems we operate under can be found in the Sustainability Report on page XX

EU ETS

% of Scope 1 emissions covered by the ETS

99

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1 2021

Period end date

December 31 2021

Allowances allocated

21258891

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

24283853

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

Information on the Emissions trading systems we operate under can be found in the Sustainability Report on page XX

Québec CaT - ETS

% of Scope 1 emissions covered by the ETS

100

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1 2021

Period end date

December 31 2021

Allowances allocated

0

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

0

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

Kilmar did not produce clinker in 2021 and did not pass the 25 kt threshold to become eligible for allocations. It does have a reporting (only) obligation until 2023 because it participated in the program previously. Information on the Emissions trading systems we operate under can be found in the Sustainability Report on page 51

C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

BC carbon tax

Period start date

January 1 2021

Period end date

December 31 2021

% of total Scope 1 emissions covered by tax

35

Total cost of tax paid

Comment

Sweden carbon tax

Period start date

Period end date

% of total Scope 1 emissions covered by tax

Total cost of tax paid

Comment

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

Description of the strategy:

Our Group CO2 Strategy Manager in conjunction with the CO2 expert group and the CO2 trading manager manage the participation in carbon tax and emission trading schemes at Group level. They ensure that every year, the allowances needed are available, e.g. via trading, thereby ensuring compliance with the systems we are subject to. Operating under a CO2 regulation requires a close monitoring of all actions taking place inside the plants in terms of usage of different fuel types, raw materials used for clinker production and the mix of cementitious products in the portfolio. For example, the EU ETS provides a framework for a close monitoring of emissions as well as a verification process which is translated into processes in the plant and country management. The legal framework hereby sets a benchmark for reporting processes that are also used for internal optimization of production and the product portfolio. Our low-carbon transition plan is another example of how we comply with the systems we participate and anticipate to participate in. Indeed, our strategy to lower our CO2 footprint by at least 30% by 2025 and beyond 45% until 2030 helps us in complying with all Cap-and-like the EU ETS, the Cap-and-Trade system. Our reduction targets that are compliant with the targets of the Paris Agreement are in line with the reduction of the overall cap in those systems.

Risks associated to changing prices of allowances are analyzed by means of different forecasting scenarios and by monitoring public policy developments very closely at country and regional level. Once risks have been identified and assessed by the experts in the Group, such as the Group CO2 Strategy Manager, they are reported to the Group Insurance & Corporate Risk department and are then managed to mitigate any potential adverse impact on the Group. They are assessed with the help of a Risk Atlas (Mapping tool for potential risks and losses) and the information is used by Environmental Social Governance (ESG) to update the scenarios and allocation models on a regular basis according to new (political) developments and findings.

HeidelbergCement also convenes an internal CO2 expert group. This is a group of people made up of managers responsible for carbon tax /ETS issues at country level, such as environmental and sustainability managers, as well as technical directors and our Public Affairs staff, and is convened by the Group CO2 Strategy Manager on a regular basis. It ensures that upcoming regulatory issues are discussed with managers responsible at country level.

At country level, issues relating to ETS or carbon tax are also part of the Quarterly Management Meetings, where country General Managers deliberate on all relevant business issues with their respective Area Board Member. Financial and operational impacts related to CO2 are highlighted on a regular basis.

We also use a dynamic internal carbon price to inform CAPEX decisions: The internal carbon price for all countries is used for the main CAPEX projects for the next strategic planning exercise (2020-2024) as well as in the financial assessment informing our due diligence e.g. new installations or capacity increases in the cement business line, as this is our most energy- and CO2-intensive business line. For instance, when choosing the type of fuel, the cost of alternative fuels is discounted because of the biomass content that is considered to be carbon neutral. This increases the business case for the choice of alternative fuel installations and therefore drives investments in those, which leads to emission reductions.

One **example for applying this strategy** is the EU ETS:

A working group consisting of members of the Managing Board responsible for sustainability, the Director of ESG, the Director of Group Strategy (GSD), the CO2 Strategy Manager, the country managers and the Area Managers from the Heidelberg Technology Centers have developed the Strategic Plan 2030 that breaks down our emission reduction targets on a plant and kiln level. This plan is in line with the cap reductions of the EU ETS. Phase IV regulatory issues are monitored very closely and discussed in the CO2 expert group for HeidelbergCement Group-internal alignment. Furthermore, the expert group, the CO2 strategy manager and the CO2 trading manager ensure that the measures fixed in the Strategic Plan are implemented. Financial and operational impacts related to the Strategic Plan are discussed by the country managers and the Area Board Members on a regular basis in the countries under the EU ETS. For instance, in Hungary the modernization of our plant Vác completed in 2020 was mainly driven by emission reduction efforts being part of the Strategic Plan.

Furthermore, the Strategic Plan 2030 was rolled out globally into all regions to drive to our ambitious climate targets in all HeidelbergCement operations currently operating under any regulatory environment.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Objective for implementing an internal carbon price

Navigate GHG regulations
Stakeholder expectations
Change internal behavior
Drive energy efficiency
Drive low-carbon investment
Stress test investments
Identify and seize low-carbon opportunities

GHG Scope

Scope 1
Scope 2
Scope 3

Application

We apply a dynamic internal carbon price at HeidelbergCement to navigate GHG regulations such as the EU ETS. In countries subject to an emissions trading systems such as the EU member states, we run various scenarios with different prices to anticipate the CO2 cost we will be exposed to in the 4th trading period until 2030. For new investment projects of CAPEX larger than 30 million €, we apply an internal carbon price for the cement business line in the European Union as well as Canada and California (US) to inform investment decisions and drive low-carbon investments. The price per ton of CO2 in investment decisions is based on a linear increase up to 100€ by 2030 and 150€ in 2050. Year over year we work with an updated CO2 price for the current business year.

Actual price(s) used (Currency /metric ton)

90

Variance of price(s) used

We apply uniform pricing and on top of that conduct a sensitivity analysis with varying prices in markets subject to the EU ETS. The price per ton of CO2 in investment decisions is based on a linear increase up to 100€ by 2030 and 150€ in 2050. Year over year we work with an updated CO2 price for the current business year.

Type of internal carbon price

Shadow price

Impact & implication

Our internal carbon price raises awareness within the company of the societal cost of climate change. Furthermore, the application of an internal carbon price helps us to anticipate financial risks and implications. We operate in around 50 countries, and in over 20 of them, no emission trading or carbon tax applies so far. A high internal carbon price favours the application of high end technology. As HeidelbergCement is a very technology-driven company, and as this is what defines our position in the market, a meaningful global internal carbon price is in line with our overall strategy. Furthermore it helps us to meet our ambitious reduction targets and to evaluate CAPEX projects bearing in mind externalities related to CO2 emissions. Hence, we apply the internal carbon price to inform investment decisions and drive low-carbon investments for new investment projects of CAPEX larger than 30 million €. On top of that, conducting a sensitivity analysis in markets subject to the EU ETS helps us gauge the effect of the ETS on HeidelbergCement and to manage our compliance strategy accordingly as prices are evolving over time.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers
Yes, our customers/clients

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

20

% total procurement spend (direct and indirect)

26

% of supplier-related Scope 3 emissions as reported in C6.5

0

Rationale for the coverage of your engagement

HeidelbergCement AG defines critical suppliers as global suppliers that account for a significant part of global spend and are crucial for our core business and/or those suppliers that could impact performance of our supply chains and operations. They are managed centrally by the Group Procurement department and are addressed in our Global Supplier Sustainability Initiative launched in 2017. This initiative is part of Responsible Procurement, that works towards a transparent, sustainable and future-oriented approach to procuring products and services. To ensure a reliable and responsible supplier qualification, we collaborate with Avetta/Browz, an external expert on sustainability assessments. We request information from our suppliers based on a comprehensive questionnaire covering the fields of CSR (13 questions), Environmental (2 questions) and Sustainability (8 questions). If a supplier obtains a score lower than 50%, we consider this to constitute a deficiency. With these suppliers we work closely together to eliminate the deficiencies through action plans. The process actively monitors our suppliers' compliance with the principles outlined in the Supplier Code of Conduct (SCoC), extending well beyond the mere self-commitment by suppliers. In addition, accepting the HeidelbergCement SCoC is the minimum threshold for all suppliers, that want to participate in tender activities via our web-based tendering systems "EasySupply" and "Ariba". Our SCoC requires our suppliers to carry out their operations with care for the environment and to include compliance with all relevant legislation in the country concerned. Please note that the figures mentioned above for % of suppliers and % total procurement spend refer to the total of our critical suppliers. Spend with critical suppliers makes up around 8% of the total global annual procurement spend. All suppliers that are invited to online tenders/auctions via our web-based Tendering Systems "EasySupply" and "Ariba" are obliged to accept HeidelbergCement's SCoC. Acceptance of our SCoC and tendering process gives the platform to collect climate-related information from our suppliers. Specific CO2 emissions are not yet provided by suppliers.

Impact of engagement, including measures of success

Since 2017, HeidelbergCement is ramping up its Global Supplier Sustainability Initiative together with Avetta/BROWZ, an external expert on sustainability assessments. The assessment of any supplier is based on a comprehensive questionnaire covering the fields of Corporate Social Responsibility, Environmental and Sustainability. In addition, the acceptance of our Supplier Code of Conduct is required. We measure our success by means of the score of the respective supplier in our Supplier Questionnaire. If a supplier obtains a score lower than 50% in the questionnaire, we work closely together with them to eliminate the deficiencies. On-site audits are a possible second step after the assessment in order to validate the data provided through the assessment, to monitor performance improvement and to ensure that our supply chain standards are pursued. In 2020, we had covered 54% of the spend with our critical suppliers with the Initiative, in 2021 this number was decreased to 26% due to suppliers migration from Browz to Avetta, which required all suppliers to re-register manually. We are currently onboarding our suppliers to catch up with 2020 result. We measure our success by means of the score of the respective supplier in our Supplier Questionnaire. Within the last 12 months, a total of 205 suppliers improved their status from "increased risk" to a better status. In relation to the total number of suppliers assessed, this would result in 7.45%.

Comment

Please note, that the % of supplier by number and % of procurement spend decreased due to supplier migration from Browz to Avetta, which required all suppliers to re-register manually. Currently we are onboarding our critical suppliers to catch up with 2020 results. Those two numbers refer to the total of our critical suppliers. Spend with critical suppliers makes up around 8% of the total global annual procurement spend. Further information on our Engagement with suppliers can be found under Responsible Procurement <https://www.heidelbergcement.com/en/responsible-procurement>.

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

Yes, climate-related requirements are included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement

Complying with regulatory requirements

Description of this climate related requirement

Climate related requirements are included in our Supplier Code of Conduct (SCoC), that is the minimum threshold for all suppliers, that want to participate in tender activities via our web-based tendering systems "EasySupply" and "Ariba". According to our SCoC supplier operations are expected to include at minimum compliance with all applicable laws and regulations in the country concerned and will be carried out with due diligence and care for the environment. Environmental impacts regarding, but not limited to, emissions, energy, water, waste and biodiversity will be managed systematically, and suppliers aim to avoid, minimize or compensate such impacts. Suppliers are moreover required to have appropriate environmental procedures in place, and to continuously improve their environmental performance. As of now we can only measure the compliance of critical suppliers, that account for 8% of global annual spend - that is the number we refer to below. Additionally together with our partner Avetta we request information from our suppliers based on a comprehensive questionnaire covering the fields of CSR (13 questions), Environmental (2 questions) and Sustainability (8 questions). In 2020, we had covered 54% of the spend with our critical suppliers, in 2021 this number was decreased to 26% due to Browz/Avetta migration, that required suppliers to re-register manually, however we are currently onboarding our suppliers to catch up with 2020 result.

% suppliers by procurement spend that have to comply with this climate-related requirement

8

% suppliers by procurement spend in compliance with this climate-related requirement

26

Mechanisms for monitoring compliance with this climate-related requirement

Supplier self-assessment
Grievance mechanism/Whistleblowing hotline
Supplier scorecard or rating
Other, please specify (Supplier Code of Conduct)

Response to supplier non-compliance with this climate-related requirement

Retain and engage

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers
Yes, we engage indirectly through trade associations
Yes, we engage indirectly by funding other organizations whose activities may influence policy, law, or regulation that may significantly impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

Climate Policy 2021 (currently being updated with new 2030 sustainability announcements)
<https://www.heidelbergcement.com/sites/default/files/assets/document/34/4f/heidelbergcement-climate-policy-2021-en.pdf> Climate Advocacy and Association Review 2021
https://www.heidelbergcement.com/sites/default/files/assets/document/dd/54/heidelbergcement_climate_advocacy_and_association_review_2021.pdf Code of Business Conduct: <https://www.heidelbergcement.com/sites/default/files/assets/document/db/5d/hc-code-of-conduct-2020-en.pdf>

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy

HeidelbergCement recognizes that global climate change is a key challenge for our society, and we support the aim of the UNFCCC Paris Agreement to limit global warming to well below 2°C and pursuing efforts to limit it to no more than 1.5°C. We have adopted a global CO2 reduction roadmap with the most ambitious 2030 CO2 reduction target in our sector globally and the ambition to become a net-zero company by 2050. In June 2021, HeidelbergCement also signed the "Business Ambition for 1.5°C Commitment", a global initiative that confirms our ambition. In the same step, the company joined the UN "Race to Zero" campaign further underlining our leadership role on the road to carbon neutrality in the cement industry. Our commitments have been validated by the Science-based Target Initiative (SBTi) and we are on track to have our commitments approved in line with the 1.5°C pathway as soon as the SBTi methodology for the cement sector is finalized and ready to be used. We acknowledge that our climate commitment also needs to be mirrored in our political engagements at global, regional and local level in order to support the transformation of our industry. HeidelbergCement advocates for comprehensive global and regional carbon pricing systems coupled with a level playing field to enhance effective responses to climate change (see Group Climate Policy document for more information). We assure global governance and alignment of our advocacy work and our activities in associations through our interdisciplinary task forces that include experts from Group staff functions and operations. As mentioned previously, six interdisciplinary working groups comprising experts from different departments are responsible for the topics of CO2 management, sustainable land management, sustainable construction, social responsibility, sustainability strategy and risk management, as well as sustainability ratings and reputation. Several of these topics are further coordinated by steering committees, as in the case of CO2 management, which report to the Managing Board. Besides the coordination task, these groups are responsible to define main positions, guidelines, goals, and measures, as well as ensuring their implementation.

Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

Focus of policy, law, or regulation that may impact the climate

Other, please specify (Industry transformation and climate protection)

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Our political engagements concerning industry transformation and climate protection focus on the aspects of carbon pricing and cross-border leakage protection, energy transition, CCUS, circular economy, sustainable construction, green procurement, biodiversity and sustainable finance. These aspects determine our ability to fulfil our commitment to our sustainability targets and to become a net-zero company by 2050.

Policy, law, or regulation geographic coverage

Global

Country/region the policy, law, or regulation applies to

<Not Applicable>

Your organization's position on the policy, law, or regulation

Please select

Description of engagement with policy makers

HeidelbergCement recognizes the importance of engaging in an constructive dialogue with political stakeholders to advance the transformation of our industry. The discussions foster a common awareness of existing barriers and opportunities for driving emission reduction measures, help us as a company to anticipate regulatory expectations and developments as well as to communicate and advocate our views. We conduct these engagements directly via own representatives and indirectly via industry association. In addition, we recognizes the importance of carrying out these engagements in a fair and transparent manner. We report on our activities and publish the names our representatives in applicable transparency registers and support the implementation of such registers in jurisdictions which have not yet done so. We conduct any political engagement in compliance with our own code of business conduct and other company policies, such as (above mentioned) climate policy, data protection policy, compliance policy, as well as our competition law and anticorruption guidelines.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

<Not Applicable>

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.3b

(C12.3b) Provide details of the trade associations your organization engages with which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

CEMBUREAU: The European Cement Association

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

CEMBUREAU (the European Cement Association) fully recognizes climate science as the basis for discussion on climate change policy, per example: - Is in favor of the EU emission mitigation targets and strongly favors an international agreement on wide-spread climate change mitigation. - Published an updated carbon-neutrality roadmap in alignment with the Paris Agreement in '20. This roadmap sets out the cement industry's ambition to reach net zero emissions along the cement and concrete value chain by 2050. It looks at how CO2 emissions can be reduced by acting at each stage of the value chain – clinker, cement, concrete, construction, and recarbonation. It quantifies the role of each technology in providing CO2 emissions savings, making concrete political and technical recommendations to support this objective - Supports the objectives of the EU Green Deal and contributed to the political debate, providing input on EU's vision for a carbon neutral society by 2050 - Supports the implementation of a carbon boarder adjustment mechanism in parallel to free allocation until the end of EU ETS trading phase 4 to avoid system and price shocks that would limit the capacity of its member companies to invest in low-carbon breakthrough technologies - Supported the development of the EU innovation fund and advocates for fast development of EU-wide CO2 infrastructures - Regarding EU taxonomy, pushed for fast issuance of the necessary delegated acts to clarify reporting requirements and a consideration of the sustainability value of co-processing - In circular economy, it is looking forward to being part of the discussions with the European Commission in its work regarding the assessment described in the article 11 of the revised Waste Framework Directive - Advocates for landfill bans and argues for that the EU circular economy action plan should boost circularity of construction materials and promotes the revision of existing product and construction standards to increase the use of recycled materials HeidelbergCement's representatives are very active in CEMBUREAU's working groups. HeidelbergCement is chair or co-chair in several working groups and task forces. In this function, representatives are actively steering the internal discussions for developing CEMBUREAU's position on EU environmental and climate policy. HeidelbergCement is furthermore represented in the Board of Cembureau, which is tasked with defining the strategic orientation of the association.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify (Zero Emissions Platform (ZEP))

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

ZEP fully recognizes climate science as the basis for discussion on climate change policy. ZEP is advocating for the large scale deployment of carbon capture and storage or use as key technologies for combating climate change. In this regard ZEP advises the European Commission on the research, demonstration and deployment of these technologies to ensure a sustainable decarbonisation of the economy. As an advisory council member, HeidelbergCement gives input on topics, such as industrial CCS, and steers the overall development and advocacy of ZEP.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify (Global Cement and Concrete Association)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

The GCCA is advocating for a sector-based approach of climate mitigation to enhance a large-scale response to climate change. A sectorial market mechanism consists of emissions reductions goals jointly set by governments and companies for industry sectors. It considers sector market mechanisms as being the most cost-effective tool as they can build on national priorities and leverage existing emission reduction efforts, while rewarding emission reduction efforts with trade credits. While ultimately a global climate agreement needs to be put in place, the GCCA recognizes that large-scale emissions abatement activities can start at regional and/or country level. GCCA considers that reporting and accounting is key when implementing a climate change policy. The association developed a CO2 calculation methodology for scope 1, 2 and 3 emissions. In addition, the GCCA launched an initiative called "Getting the Numbers Rights". GNR is a voluntary, independently managed database of CO2 and energy performance information on the global cement industry. The majority of the emissions reported under GNR have been externally verified. Together with our partners in the GCCA, we as HeidelbergCement strive to develop a worldwide industry-specific approach as a new concept for reducing CO2 emissions in the most effective way in our industry. In 2020 the Global Cement and Concrete Association (GCCA) issued its Climate Ambition to achieve carbon-neutrality by 2050. It is committed to work across the built environment value chain to deliver this aspiration in a circular economy, whole life context. An associated roadmap details the measures to achieve the set-out ambition, which is fully aligned with the positions of HeidelbergCement concerned with industry transition and climate protection as. As the GCCA is operating on international level it did not engage in political debates concerning specific legislative proposals. Our representatives are involved in all aspects of the initiative's work. Regarding climate change, HeidelbergCement's representatives are chairs and/or members of the following Working Groups and Task Forces: Technology development, CO2 protocol revision, and climate change. In addition, HeidelbergCement representatives acted for the GCCA as negotiator to the UNFCCC on the development of standardized baselines for CDM projects.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify (Verein Deutscher Zementwerke e.V. (VDZ), the German cement industry association)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

VDZ fully recognizes climate science as the basis for discussion on climate change policy. VDZ is in favor of emission mitigation targets and strongly favors an international agreement on wide-spread climate change mitigation. VDZ believes that competitiveness of European and German industry should be taken into account when drafting climate change policy. It published a roadmap to achieve a carbon-neutral cement industry in Germany by 2050 in 2020 as well. This roadmap was developed with input from HeidelbergCement and is aligned with our carbon-neutrality strategy. Focus areas of VDZ's political engagements in 2020 concerned to the implementation of a national emissions trading system in Germany in parallel to the EU ETS (arguing for the implementation of a cap and trade scheme instead of a tax scheme and advocating for exemptions for EU ETS installations to avoid double burdens), the implementation of funding programs for developing CCU/S (organizing an expert workshop and engaging with government representatives to create support for CCU/S), and the discussion of necessary framework conditions to enable industry transition in the German cement industry without endangering its competitiveness. VDZ supported the set-up of the Competence Centre on Climate Change Mitigation in Energy-Intensive Industries by the German Federal Ministry for Environment and engaged proactively in the public debate on developing concepts for OpEx support for low-carbon breakthrough technologies. VDZ's position on requirements for a suitable framework for decarbonization considers the entire construction value chain from clinker, cement and concrete to the construction site, the structure, the re-use of components and recovery of construction waste through revision of construction law, the rapid adaptation of standards& regulations in the interests of climate protection and the accelerated standardization of CO2-efficient products. This encompasses the creation of incentives for investment in more climate-friendly cements and concretes, and making these competitive compared to conventional products. HeidelbergCement is active in all committees of VDZ and is represented in the Board with several representatives. Additionally, the current president of VDZ is a HeidelbergCement employee.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify (Verband der Industriellen Energie- und Kraftwirtschaft e.V. (VIK))

Is your organization's position on climate change consistent with theirs?

Mixed

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

VIK fully recognizes climate science as the basis for discussion on climate change policy. VIK is in favour of emission mitigation targets and strongly favours an international agreement on wide-spread climate change mitigation. In the absence of such an agreement, VIK believes that competitiveness of European and German industry should be taken into account when drafting climate change policy. A policy leading to carbon leakage would only decrease emissions in a region to increase them in another region more environmentally flexible, and therefore miss the overall policy objective of global climate change mitigation. Climate change policy should also be reliable and predictable, and VIK calls for consistency between German and European climate protection goals and policy. Furthermore, VIK is active in advocating for research funding on low carbon breakthrough technologies and a cost-efficient energy transition, compensation of competitive disadvantages arising from levies for renewable energy funding and proper functioning of energy markets. HeidelbergCement is represented in the Board of VIK and has representatives in most association committees. In some Committees HeidelbergCement representatives are either chair or co-chair.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify (Bundesverband Baustoffe – Steine und Erden e.V. (BBS))

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

BBS fully recognizes climate science as the basis for discussion on climate change policy. BBS is in favour of emission mitigation targets and strongly favours an international agreement on wide-spread climate change mitigation. In the absence of such an agreement, BBS believes that competitiveness of European and German industry should be taken into account when drafting climate change policy. A policy leading to carbon leakage would only decrease emissions in a region to increase them in another region more environmentally flexible, and therefore miss the overall policy objective of global climate change mitigation. Climate change policy should also be reliable and predictable, and BBS calls for consistency between German and European climate protection goals and policy. In addition, BBS is taking an active part on climate change mitigation action including the role of innovation in curbing emissions. Furthermore, it is active in advocating for research funding on low carbon breakthrough technologies, sustainable construction and compensation of competitive disadvantages arising from renewable energy transition and coal phase out. The current president of BBS is the CEO of HeidelbergCement. Additionally, representatives from HeidelbergCement are active in all committees of BBS. In many Committees HeidelbergCement representatives are either chair or co-chair.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Federation of German Industries (BDI)

Is your organization's position on climate change consistent with theirs?

Mixed

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

BDI fully recognizes climate science as the basis for discussion on climate change policy. BDI is in favour of emission mitigation targets and strongly favours an international agreement on wide-spread climate change mitigation. In the absence of such an agreement, BBS believes that competitiveness of European and German industry should be taken into account when drafting climate change policy. HeidelbergCement is not a direct member of BDI. HeidelbergCement representatives participate in relevant working groups and committees via its membership in BBS and VDZ.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Portland Cement Association

Is your organization's position on climate change consistent with theirs?

Mixed

Has your organization influenced, or is your organization attempting to influence their position?

We are attempting to influence them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

The U.S. American cement industry association only shows a partial alignment, while they are fully aligned with HeidelbergCement on several issue areas. Because they have a more restrictive stance on carbon pricing and energy transition and critical position on the internalization of carbon cost via levies or pricing schemes they have not been assessed as being fully aligned. A full alignment with HeidelbergCement exists, however, on the necessary framework conditions to deploy CCU/S. The PCA is currently developing a roadmap laying out a pathway to achieve carbon neutrality across the concrete value chain by 2050. Publication of the roadmap is foreseen for the end of this year. The roadmap is intended to solve problems facing the industry, such as developing new technologies to reduce energy consumption and to develop and adopt related regulations. HeidelbergCement is represented in the Board of PCA and has representatives in most association committees. In some Committees HeidelbergCement representatives are either chair or co-chair.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

No, we have not evaluated

Trade association

Other, please specify (Cement Association Canada (CAC))

Is your organization's position on climate change consistent with theirs?

Mixed

Has your organization influenced, or is your organization attempting to influence their position?

We are attempting to influence them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

The Canadian cement industry association only shows a partial alignment, while they are fully aligned with HeidelbergCement on several issue areas. Because they have a more restrictive stance on carbon pricing and energy transition and critical position on the internalization of carbon cost via levies or pricing schemes they have not been assessed as being fully aligned. A full alignment with HeidelbergCement exists, however, on the necessary framework conditions to deploy CCU/S. HeidelbergCement is represented in the Board of CAC and has representatives in most association committees. In some committees HeidelbergCement representatives are either chair or co-chair.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

No, we have not evaluated

Trade association

Other, please specify ("Stiftung KlimaWirtschaft — German CEO Alliance for Climate and Economy".)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

"Stiftung KlimaWirtschaft — German CEO Alliance for Climate and Economy". is a like-minded coalition of companies with the aim of limiting global warming, to generate further positive momentum for industry transition and climate protection. They directly engage German government representatives on issues relevant to enable industry transition. It issued in 2020 policy papers on necessary framework conditions to increase the share of renewable energy and to incentivize offtake of carbon-neutral products. The position demands internalization of carbon cost via cap and trade for all market participants, funding programs und green public procurement to successfully deploy and operate low carbon breakthrough technologies, and renewable energy scale-up. "Stiftung KlimaWirtschaft — German CEO Alliance for Climate and Economy". s an initiative of board chairmen, managing directors and family business leaders. Its objectives are to support policymakers' efforts to establish an efficient market-based climate policy framework and to activate German entrepreneurs' potential in the fight against climate change. Our Head of Liaison Office Berlin and General Manager Germany are directly involved in all committees and regularly exchange with the Group CEO, who represents HeidelbergCement in CEO-level exchanges.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.3c

(C12.3c) Provide details of the funding you provided to other organizations in the reporting year whose activities could influence policy, law, or regulation that may impact the climate.

Type of organization

Please select

State the organization to which you provided funding

NA

Funding figure your organization provided to this organization in the reporting year (currency as selected in C0.4)

0

Describe the aim of this funding and how it could influence policy, law or regulation that may impact the climate

“HeidelbergCement does not fund political parties. The same applies to members of governments and parliaments or electoral candidates. These rules do not apply to legally constituted groups of employees (e.g. political action committees in the U.S.). Any sponsoring of individual events in a political context must be approved by the responsible General Manager in alignment with the Director Group Communication and Investor Relations. All sponsoring will be made transparent.

Have you evaluated whether this funding is aligned with the goals of the Paris Agreement?

Please select

C12.4

(C12.4) Have you published information about your organization’s response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In mainstream reports

Status

Complete

Attach the document

Sustainability-report-HeidelbergCement-2021.pdf

Annual-report-HeidelbergCement-2021.pdf

Page/Section reference

<https://www.heidelbergcement.com/en/sustainability-report>

Content elements

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

Comment

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	Yes, both board-level oversight and executive management-level responsibility	The topic of biodiversity is assigned to the Group department ESG (Environmental Social Governance) Programs. This is part of the Sustainability Office, which was created in December 2021 and is headed by the Chief Sustainability Officer (CSO). The biodiversity manager, collaborates with HeidelbergCement countries worldwide, to address key priorities in our biodiversity agenda: biodiversity management in our quarries, habitat protection, raise the awareness in the society among, others. Our investment decisions, also consider environmental impacts, when developing a new quarry or the expanding an existing one, the company first conducts an extensive approval process in line with the corresponding laws and regulations, while our internal guidelines ensure that biodiversity impact is included. Our sites are operated in accordance with relevant international, national, and local environmental legislation, and environmental impact assessments are generally pored as a pre-requisite for the approval of quarrying activities. It is imperative that we work in harmony with nature, minimize any negative impact, and take opportunities to actually enhance the ecological value of a quarry both during and after extractive activities. To reach this objective we incorporate a number of actions into our operations, including adhering to the mitigation hierarchy, undertaking a net impact assessment at our active quarries, managing sensitive species and ecosystems by understanding the location of our footprint and implementing biodiversity management plans, promoting ecological restoration and ensuring biodiversity features are incorporated in all reclamation plans, understanding the role of quarries in facilitating invasive alien plant species and managing them appropriately. We partnership with NGOs/academia to raise the understanding amongst society of the ecological importance of quarries and how to maximize this, and lastly by integrating nature based solutions into quarry management, and post extraction after uses. In 2021, we celebrated the tenth anniversary of our partnership with BirdLife International. In the run-up of the anticipated EU nature restoration law, the signatories are calling on the European Commission to develop legally binding and scientifically substantiated restoration goals based on strong governance mechanisms.	<Not Applicable>

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Commitment to Net Positive Gain Adoption of the mitigation hierarchy approach	CBD – Global Biodiversity Framework SDG

C15.3

(C15.3) Does your organization assess the impact of its value chain on biodiversity?

	Does your organization assess the impact of its value chain on biodiversity?	Portfolio
Row 1	No, and we do not plan to assess biodiversity-related impacts within the next two years	<Not Applicable>

C15.4

(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity-related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management Species management Education & awareness Law & policy

C15.5

(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	Please select

C15.6

(C15.6) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Impacts on biodiversity Details on biodiversity indicators Influence on public policy and lobbying Biodiversity strategy	Sustainability Report
In mainstream financial reports	Governance Impacts on biodiversity Influence on public policy and lobbying Biodiversity strategy	Annual Report, pg 57
In voluntary sustainability report or other voluntary communications	Impacts on biodiversity Influence on public policy and lobbying Biodiversity strategy Other, please specify (Partnership working)	10 Year celebration with BirdLife
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Biodiversity strategy	Link to HC/BL film: https://www.youtube.com/watch?v=5Nwe5J4xk-s
In voluntary sustainability report or other voluntary communications	Governance Biodiversity strategy Other, please specify	HC France/IUCN: https://www.youtube.com/watch?v=rkjMvSktJGI

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Chief Sustainability Officer/Member of the Management Board	Director on board

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

Requesting member

ARKEMA

Scope of emissions

Please select

Allocation level

Please select

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

Uncertainty (±%)

Major sources of emissions

Verified

Please select

Allocation method

Please select

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied

Please select

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
-----------------------	--

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

The European Climate Pact Submission

Please indicate your consent for CDP to showcase your disclosed environmental actions on the European Climate Pact website as pledges to the Pact.

Yes, we wish to pledge to the European Climate Pact through our CDP disclosure

Please confirm below

I have read and accept the applicable Terms